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THE ACADEMY:

A JOURNAL OF SECONDARY EDUCATION

DEVOTED TO THE INTERESTS OF HIGH SCHOOLS ACADEMIES AND
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NO. 1

*HOW TO DO LABORATORY WORK IN CHEMISTRY
AND PHYSICS IN HIGH SCHOOLS.**

JAMES H. SHEPARD, YPSILANTI HIGH SCHOOL, MICHIGAN.

I.

Before entering upon the discussion of this topic, it will be advantageous to state briefly what we aim to accomplish by our modern laboratory work.

At the outset, then, be it understood that natural science occupies its own field and that there is no conflict between it and other legitimate branches of educational value. Moreover, on the part of science teachers of the present epoch, there is no wish expressed or implied that such studies should wholly replace the older branches, or curtail them to such an extent that they become inoperative.

The most potent reason for assigning such studies as chemistry and physics an honorable place in our curriculums is that they occupy ground that has lain fallow for ages, and that, by developing essential faculties which have either remained dormant or have been left to shift for themselves, they become indispensable factors in educating men and women with symmetrically trained minds.

What then, from an educational point of view do we aim to

*A paper read before the Illinois State Teachers' Association, at Springfield, December 29th, 1887.

accomplish by laboratory work in chemistry and physics? In the first place, when properly conducted, laboratory work leads the pupil to form habits of observation. One can hardly over-estimate the intrinsic worth of such an accomplishment as to be able to see, to see critically and intelligently. Emerson has well said: "I am impressed with the fact that the greatest thing a human soul ever does in this world is to see something, and to tell what it saw in a plain way. Hundreds of people can talk for one who can think, but thousands can think for one who can see. To see clearly is poetry, prophecy and religion, all in one."

Again, laboratory work teaches the pupil to do. It needs no rhetoric, no logic, to demonstrate that the man who can do possesses advantages over the one who can not. It would indeed, be difficult to conceive of any rank or station in this world, in which an ability to do things would be useless. In the home, in the shop, in the field and in the professions he who can do with a certain "*Geschick beim Arbeiten*" is a more independent man, a more useful citizen. Moreover, there is another feature, and a desirable one at that, of the doing inculcated by laboratory work; and that is the pupil learns to exercise care in all he does; without this the doer becomes a bungler and a destroyer. The continued use of corrosive chemicals and of delicate apparatus gives a deftness of touch and a deliberateness of movement that always distinguishes the master mechanic from the awkward and uncouth bungler. There are other requirements connected with the successful completion of laboratory work, such as neatness, economy, order and habitual concentration of thought. And the inculcation of such habits as these is a valuable feature in any system of education.

In the third place, true laboratory work leads the student to originate. He is constantly called upon to exercise all his ingenuity in overcoming the obstacles that arise from day to day in his experimentation. What shall we say of the power to originate? What more can we say than to define it as that power which enables one to help himself over difficulties, to lift himself out of the rut of the commonplace, and to become a progressive citizen of the world?

And lastly, it must suffice to call attention to the fact that a true understanding of chemistry and physics can be obtained in no other way than by doing laboratory work in these branches. When we come to consider the importance of these branches of science as factors in our modern civilization, when we remember that every

day the press brings us accounts of new discoveries in chemistry and physics, and descriptions of their application to industrial processes, it becomes unnecessary to dwell upon the fact that a proper knowledge of these branches is needed to keep one abreast of modern ideas and modern improvements.

II.

Thus it appears from considerations like the foregoing that laboratory work in science is worthy of a place in every system of liberal education. That it is surely gaining a foothold throughout the length and breadth of the land there can be no question; but still there are some actuated by divers motives, who are still hesitating and sometimes even resisting the onward march of liberal and progressive education in these directions. When called upon to give a reason for maintaining the grounds they occupy we are wont to hear some such replies as the following:

(1.) Laboratory work in secondary schools is impracticable: it can not be done. We are hearing less and less of such an answer as this, and the day is not far distant when an educator of reputation will not dare to rise in public, howsoever remote be the locality, and give such an answer utterance. Hundreds of schools throughout the land are by their work and practice daily proving the falsity of such an assertion.

(2.) The pupils of our secondary schools are not mature enough to comprehend the work attempted in these new-fangled laboratories. In this assertion we can see how one's preconceived ideas become an obstruction, a stumbling block, an effectual barrier to further progress. But as in the previous case, the day is not far distant when the testimony of the pupils themselves educated in these pioneer laboratories, will forever silence all such objections as this.

(3.) The money necessary to equip a laboratory can not be obtained. Let us examine this statement a little more closely. In the first place, the modern idea of a laboratory is not at all similar to that of one generation ago. The modern laboratory is a work-shop (where boys and girls can and do work from day to day) and is chiefly remarkable for the absence of glittering and expensive apparatus whose principal use has ever been to maintain a reserved and haughty air of grandeur behind the glass doors of a show-case. The apparatus used in the modern laboratory is simple, inexpensive and efficient. It was made to work with, and the modern teacher sees to

it that the boys and girls do work with it. Some of it is home-made, some of it is even made by the pupil himself; but it works, and that exactly meets the requirements in the case. In many a school throughout the country, one may find that money enough to equip a good laboratory for chemistry and physics has been spent for a few pieces of showy apparatus that are not used five hours in a year, and in fact are not used by the pupil at all. I know of one man who obtained \$400.00 from his school board for the purpose of purchasing apparatus for teaching natural science. And what do you suppose he bought? Test-tubes? Chemicals? Balances? Insulated wire? Magnets? Thermometers? No; not he. He bought a telescope, a camera lucida and a patent adding machine. Now where did the fault lie, with the board or with the teacher himself?

(4.) Laboratory work can not be carried on in large schools, in small schools, or in such schools as ours.

(5.)* They say that laboratory work is easy to do, but nobody ever tells how it can be done.

These last two objections merit a more extended notice, and their consideration leads us directly to the main object of this paper.

III.

What, then, are the elements concerned in laboratory work? What are the conditions that lead to failure or to success? How shall the work be done?

A general survey of the subject will reveal the following factors which exert a marked influence upon the methods to be pursued and upon the work to be done:

1. The qualifications and inclinations of the teacher.
2. The laboratory room available and the equipment in conveniences for working.
3. The number of pupils in the classes to be taught.

In regard to the qualifications of the teacher: There can be no doubt that a good preparation and years of patient class-room work will insure the best results. But, at the present time, experienced science teachers are by no means plentiful. The real difficulty lies in the fact that "The harvest truly is great, but the laborers are few." The majority of our teachers were educated under the old didactic methods, and what wonder is it that some of them hesitate to attempt experimental work? The paramount question with them is a question of immediate success or of immediate failure. And in case the

inclinations be wrong or the ambition wanting, the same old methods are sure to be retained, and that too in spite of the fact that such a course is certain, sooner or later, to prove disastrous.

Be it far from me to attempt to hold out a single false inducement, but it is my firm conviction that given a good ordinary knowledge of the subject, a proper regard for the welfare of the pupil, a love and enthusiasm for the work, and a willingness to undergo present hardship in order to reap a greater reward, there is success, sure and certain, awaiting him who has the endurance to overcome. What if the first year's work is not entirely satisfactory to the conscientious worker? What if extra exertion is called forth? What if one's time for recreation or amusement is curtailed? Does not the laborer himself become more proficient? Is not the calm satisfaction of having done one's best a sufficient reward? And added to all this, there is a satisfaction in knowing that another year the road will be easier, the work less perplexing, the experience greater, and the results better.

Moreover, to a great degree, the difficulties which formerly beset the path of the explorer in experimental work have been swept away; others have gone over the road and their experience stands recorded. Here and there, all over our land, there are schools wherein clear-headed, warm-hearted workers in experimental science may be found who are ever ready to lend a helping hand to a worthy brother in distress. It is a fact worthy of emphasis, that among no other class of teachers is there a greater willingness to give aid, comfort and advice to a beginner than among teachers in experimental science.

We have said that success awaits the conscientious teacher whose inclinations are right; but what shall we say of him who lazily pursues the old "Grind Methods," to the detriment of himself and his school, who is willing and satisfied to give to the rising generation the semblance, the mockery, of better things? It is, alas! too frequently nothing but the same old story: "The slothful man saith, There is a lion without, I shall be slain in the streets."

When we come to speak of the laboratory itself, the first difficulty we meet lies in the fact that not one in one hundred of our present school buildings was constructed with reference to a laboratory. Consequently it devolves upon the teacher to adapt his laboratory arrangements to a room not originally designed for that purpose and sometimes not even designed for any purpose at all. But the energetic teacher is not daunted by this obstacle. If he can not have a room located where he would like it he takes one somewhere else,

even going into the basement when no spare room on the main floors is available; and, if he can not get a large room he takes a small one.

Having located his laboratory somewhere, the teacher next proceeds to obtain the best equipment possible, and to this end he induces his board to appropriate as large an amount of money as his needs require, or as the liberality and enterprise of the board permit. The wise teacher recognizes the fact that the better his equipment the better and the more satisfactory his work may become. Accordingly he spares no pains to enlist the sympathy and co-operation of his board by explaining what he intends to do and what good results will follow.

His appropriation obtained, he next proceeds, in case this is his first experience, to obtain all the information possible both from the written records of others and by seeking the advice of science teachers who have had experience in the work. And finally he displays his good judgment by expending the greater part of his money for such working apparatus as he can not make and for raw material from which he will afterwards prepare his reagents and construct that part of his apparatus which he can make more cheaply than he can buy.

As regards the number of pupils in science classes: Experience has shown that as many pupils can be managed in science classes during recitations as in other branches. It will therefore, be unnecessary to dwell upon this feature of science teaching. When we come to work in experimentation, however, various cases may arise depending upon the number of pupils that can be accommodated at one time. The simplest case of all is where the accommodations are sufficient for the whole class to work at the same work at the same time. This condition often arises in chemistry but seldom or never in physics. The next case is where the pupils can not all be accommodated at once. Under these circumstances it becomes necessary to divide the class into working sections, each section to work at different specified times. This arrangement is the usual one in teaching physics. A third case frequently arises wherein each pupil is required to do some specified work with only one piece of apparatus available, such as each determining the specific gravity of a different substance, when the laboratory contains but one balance. It is here necessary to defer the report on such work until each pupil has secured the use of the apparatus, while the class as a

whole passes on to other work. This is of common occurrence in physics.

IV.

We will now proceed to consider the actual work with the class itself. It has been my experience and so far as I can learn it has been the experience of others who have tried the same plan, that it is best to have the study of chemistry precede that of physics. This sequence gives the best results in every respect; accordingly, let us first consider the methods to be pursued in the former study.

To begin with, the teacher makes the best possible arrangement with respect to the working room and the number of pupils to be accommodated. The most advantageous arrangement is to provide a working desk for each pupil, so that the whole class may work at the same time. When this can not be done, one desk for every two or one desk for every three pupils is provided. Under such circumstances the class must be divided into two or three working sections as the case may be, and a certain hour for work must be assigned to each section. These precautions, simple though they be, will insure that the work in experimentation go on smoothly and successfully.

In the recitation (unless the number in the class exceed thirty or forty) the teacher meets the whole class at the same hour. Let us now suppose that, the preliminary arrangements being completed, the teacher finds himself face to face with his class. How shall he proceed? It is but necessary now to call to mind what is to be accomplished; therefore throw to the four winds all doubt about the pupils' maturity of mind; treat them as if they were expected to know and understand, and keep ever in view that they are to learn to do, to see, to think, and to originate.

It is well to spend the recitation hour for a day or two in explaining to the pupils the scope of the study and what they are to gain by doing their work carefully. Pupils are interested in such considerations as these and enter all the more readily into a teacher's plans when they understand all the facts in the case in all their bearings.

It is expedient, next, to write on the board a list of the articles with which the student is to provide himself such as an apron, a towel, a sponge, etc., etc. After this it is well to exhibit to the class each piece of apparatus on one of the desks, call it by name, explain its use and show how it is liable to be broken. When the pupil has

thus learned to call each article by name, it is time to think of assigning a lesson.

The first lesson should never include more than one experiment, and the teacher's skill should be taxed to the utmost in order that the first experiment be properly performed. When I say "properly" I can but feel that the word is not sufficiently expressive. In this connection, properly should signify intelligently, neatly, with the utmost care for every detail and with every sense alert to detect all the phenomena that occur during the working of the experiment. Nor should the pupil be allowed to begin the experiment until he understands what an experiment involves. He is in no proper frame of mind to begin his work until he realizes what his work is to exemplify, and until he has made a proper analysis of all the factors involved. In short, he should fully understand that an experiment enables one to proceed from the known to the unknown.

Then again he should keep a careful record of all his work; and here again the careful teacher spares no pains in imparting to the learner correct habits in making his records. These records if properly made and put in permanent form will add twenty-five per cent to the educational results of the pupil's work.

It is true that with such extreme care the first experiment will not be completed in one day, but what of that? Let it take three days if it will, one experiment thoroughly done is worth more than a dozen poorly done.

In laboratory teaching the work is to be made the basis of the recitation, so in assigning the lesson it is expected that the experiments are to be prepared before the lesson is recited.

After the foregoing preliminaries the pupils are required to be at their desks at the times assigned to do their work and to take their notes. The following day at the recitation hour, one after another is called upon to read his description of the experiment; the teacher and the class join in offering suggestions as to how the work could have been better done and how the notes could be improved. This exercise completed, the teacher next proceeds in the usual way to ask questions bearing upon or expanding the subject under consideration. About three-fourths of the recitation hour is thus consumed and the remainder is employed in explaining and assigning new work and in giving all needful precautions. Sometimes, during the latter part of the hour, the teacher makes an experiment that is somewhat dangerous, and then gives permission to any in the class that may

feel so disposed, to repeat it during the hour for work. Then again he may do some work involving the preparation of some substance like nitric acid, work that can not well be done by the pupil at his desk; or, if time be wanting, he may commence it then and finish it at the beginning of the next recitation. Work like this last, however, may be profitably assigned to the working divisions when the pupils have become somewhat way-wised in manipulation.

By proceeding thus carefully at first, it will soon be found that the student can work and make notes on as many or even more experiments than can be considered during the recitation hour. As the study progresses the teacher will find it unnecessary to have the notes on an experiment read more than twice, or perhaps three times; from the criticisms of these readings the rest of the class will quickly judge what changes, if any, should be made in the notes they have taken.

During the first two or three weeks the teacher makes it a point to be present as much as possible while the pupils are at work, advising, admonishing, and criticising according to the needs of the particular student whose work he is inspecting. Little by little, however, he withdraws such supervision, and thus compels the student to rely upon his own resources.

Work in constructing and mending apparatus is also constantly occurring, and this the pupil is encouraged to do. It is better, too, that he should do it, for thus he acquires a useful habit that will prove a life-long benefit.

In the course of six or eight weeks every pupil in the laboratory will be working like a veteran and it will then be the exception and not the rule when any pupil calls upon the teacher for assistance.

In review, didactic methods, pure and simple, are followed, but in advance, the wise teacher always keeps the pupil's interest quickened by availing himself of the varied opportunities that chemistry furnishes for practical work that is extremely attractive.

In laboratory teaching the teacher remembers that the pupil is to learn to do, therefore he throws the burden of the work upon the pupil's shoulders; again, he recollects that the pupil is to learn to see and to think, and so he insists upon the notes and upon the recitations, for in these he finds the evidence and the measure of the seeing and the thinking that the pupil has achieved; and still again, the pupil is to learn to help himself, and this the teacher brings about by compelling him as soon as possible to rely upon his own ingenuity. It is not the work the teacher does, nor is it what he sees or thinks

or originates, that benefits the pupil most. The measure of success for pupil and for teacher too, is what the former has accomplished.

And thus it is that laboratory work in chemistry is done in schools of any size whatever, done by methods, simple, rational and intelligible; moreover, there is nothing in these methods that should alarm anyone howsoever timid he may be, nor raise a question as to their practicability.

There is one question that is frequently asked concerning laboratory work in chemistry, and that is: "How much time per day is required and how should the time be apportioned between laboratory work and recitations?"

This question is not so easily answered as might be supposed, since from the methods pursued there are some days when there is no work, as for example, in reviews and while considering certain mathematical and theoretical features of the study; and again there are some days when there are no recitations as when analyzing various substances such as drinking water, baking powder, crude chemicals, or unknown solutions prepared by the teacher. My reply to this question would be, that as nearly as I can estimate the same amount of time should be devoted to work and to recitations. Now, since the pupil studies, works, and takes notes during the working hour, it may be safely estimated that the study will require in all about the same amount of time per day as Cæsar or algebra.

In equipping a laboratory for physics, it is not necessary to make a separate desk for each pupil; and, besides, it will be impracticable to furnish each desk with anything like a complete set of apparatus, owing to the great expense involved. Therefore plain tables are used and only one or two sets of apparatus purchased. When economy is a necessity, and it usually is, many pieces of apparatus such as balances, thermometers, magnets, flasks, beakers, graduates, etc., are made to do duty in both chemistry and physics. Little or no inconvenience arises in so doing provided the rooms are adjacent or both equipments are placed in the same room.

The class is divided into working sections and working hours are assigned. If the students have had work in chemistry there will be no necessity for dwelling upon the science of experimentation, but work may be commenced with little delay. If however, this be the first experimental work attempted, the same care for thoroughness must be exercised as in beginning chemistry. There is, however, one fundamental difference between the experimentation in chemistry

and that in physics, viz. the prevalence of experimental errors in the latter, especially if the class be required to make quantitative experiments; and it is safe to say that the true spirit of the study cannot be imparted without such work. It becomes necessary therefore, in addition to the directions given for most chemical experimentation to dwell at length upon the nature of experimental errors and to caution and forewarn the pupil so that he may reduce these errors to a minimum or at least remove his results from the realms of the accidental. Right here arise the most difficult features of physical experimentation, and right here the teacher's skill and patience are taxed to their utmost. Not only is the pupil liable to become discouraged, but he is in no little danger of acquiring a dislike for both the work and the study which may prove fatal to future good results. And right here also lies one of the most potent reasons to the teacher of experimental science for placing the study of chemistry before that of physics. Not only does this sequence secure a better graded course in experimental work, but it also places the greatest difficulties so far apart that the student is not overwhelmed by having to meet them all at once.

The recitations are conducted in the same way as those in chemistry, and enough has been said on that score.

In the matter of laboratory work, however, different devices are resorted to in order to bring the work within the allotted time. If several experiments are embraced in the lesson, apparatus for each experiment is placed on the tables; this may be done by the teacher, but it is best to let the pupils do it themselves. Now, when a working section begins its work, one or two pupils, according to the number in the section, perform one experiment while other small parties or preferably one student at a time, work at the other experiments; as soon as the different parties finish their work they exchange places, and so on until all the work is accomplished. At other times as in determining the laws of falling bodies by means of a ball, an inclined plane and a pendulum, two pupils work together, one attending to the ball, the other to the pendulum.

Where each student is to make a different experiment with the same piece of apparatus, the reports are delayed as previously explained.

In this study also, work of much utility can be assigned the pupil in the construction of apparatus. He can readily make his own batteries, resistance coils, galvanometers, etc., for electricity. And

the same is true for apparatus used in other portions of the study as in heat, light, sound and mechanics.

What has been said concerning reviews, notes, and recitations in chemistry applies with equal force to physics.

By employing such devices as the foregoing, laboratory work in physics can be carried on in any school, be it large or small, or even "such a school as ours."

V.

In addition to the foregoing special devices, there are others more general in their nature which are much used in both chemistry and physics.

Foremost among such aids stands a select library of reference books. These books are placed in the laboratory where students may consult them at any time. They should not be taken from the room nor should there be any red tape concerned in gaining access to them. One simple rule which might appropriately be pasted in each book will suffice to secure the best results, and that is, "Read this book in the laboratory and when through with it return it to its place on the shelf." Pupils are brought to use these books in two ways: First, by assigning as occasion requires, certain topics for the class to read, which are afterwards recalled by means of questions; again, individual pupils are required to write essays on special topics and these essays are read for the benefit of the whole class. By carefully doing this work not only is the student's knowledge of the subject increased but he also learns a useful lesson, the use of reference books.

Another practice as pleasant as it is profitable, is for the class accompanied by the teacher, to visit every factory, work shop and foundry accessible where illustrations of the practical application of chemistry and physics may be found. From such excursions as these every pupil will return encouraged to pursue with renewed zeal the acquisition of knowledge that makes him more and more a factor in the great busy world about him.

In recitations there is one fundamental difference between teaching science and other branches, and that is the amount of memorizing required. The judicious teacher recognizes the fact that no profit accrues by having the pupil memorize the numerical data in chemistry and physics. No one remembers these data, nor would he be deemed any wiser if he did remember them. There is almost a complete absence of those labored efforts to memorize so charac-

teristic of the "Grind Methods." The pupil knows, but he has worked and grown into his knowledge which thus becomes a part of himself. It is almost impossible to describe how different science teaching is in these respects, but every one who has had experience can not have failed to notice how uneasy beginners in laboratory work are. They feel lost, they miss such pabulum as the rules in mathematics and the declensions and conjugations in language; so perhaps they commit at first the text and all the data. They are surprised however, to find that the teacher puts little stress on such things and they are worried and vexed to find that instead of letting them recite word for word what is written in the book, the teacher assumes that to be known and is striving to extend the fundamental principles therein stated to other subjects not mentioned at all. It is needless to say that for a time, the recitations apart from the notes, judged from the usual stand-point are dismal failures; and that these recitations if conscientiously recorded by the ordinary marking system would present a row of zeros and small digits that would frighten a devotee to "Marks and Standings." But the science teacher cares nought for this; he calmly pursues his way and soon the wisdom of his course become apparent. The pupil finally begins to exhibit a comprehension and grasp of the subject that is sufficient recompense for the miserable failures at the beginning.

There is one misapprehension on the part of some that may appropriately be noticed here. Some seem to think that the teacher must of necessity, be present at all times while pupils are at work. My own experience has been that there is no need of this after the class has some experience in manipulation. In fact there is as little need for the teacher to be present (except for disciplinary purposes) while laboratory work is going on as there is for him to be with his pupils while they are studying mathematics. There is a gain in throwing the responsibility of self-government upon the pupils while at work, and by visiting swift and certain justice upon the first offender, there will be no trouble about having as good order in the laboratory when the teacher is absent as when he is present.

In one other respect a great mistake has been made in science teaching, viz., too many studies have been attempted and too little time has been devoted to each study. There is now a reaction, and that for the better; the present motto is: "Fewer science studies

thus giving more time for each study." Now by concentrating the work upon a few studies, the pupils come to have a more extended and consequently a more practical knowledge of the branches pursued.

And thus in general does the science teacher of to-day conduct his classes. Call the process what you may, a method or no method at all. It certainly is not mere routine work which the word "Method" too frequently signifies. It stands as far opposed to routine work and "Grind Methods" as night does to day. And look at the results obtained! Compare them with that science teaching wherein the teacher does all the doing, all the originating, four-fifths of the seeing, nineteen twentieths of the thinking and about thirty-nine-fortieths of the talking! With the latter it is all TEACHER, with the former it is PUPIL, first and last and all the time.

TEACHING ENGLISH LITERATURE.

ANNA C. BRACKETT.

About thirty years ago English Literature began to take a definite place among the studies of our secondary schools. It is true that Milton's *Paradise Lost* had been used before this time as material for parsing, and lines in it were committed to memory or copied as punishment for offences or omissions of duty, but the most persistent Dryasdust can hardly have the face to maintain that such uses of the great epic constituted a study of literature. The first definite work in Literature in our schools was along the line of biography. We used compendiums, from which we learned faithfully the dates of births and deaths of all our authors, those two events being the only two probably in their lives for which they had no responsibility. We then struggled to remember whether they went to Oxford or Cambridge or nowhere. We learned lists of their works, and committed to memory somebody's criticism upon their writings. Thus fully prepared, we passed the examination with high honors, astonishing the audiences who gathered to hear us recite, by our "thorough and comprehensive knowledge." When these compendiums were very excellent, they contained scrappy selections from some of the works of the authors. So we went "through English literature."

This went on for a while, till some one suggested that possibly what we had been studying was not Literature at all, and then by degrees the schools swung over to what may be called the analytical stage. Dates and universities were dropped and a class was given, say Scott's *Lady of the Lake* as a text book. They read it aloud and to themselves. They read it right side up and upside down. They hunted out all the examples of metaphor and metonymy and looked up derivations. They counted the number of syllables in lines, and marked the accent. They drew a map of the region referred to and located every place, and they spent three months or more on this poem. This certainly had the appearance of thoroughness, but it was not studying English Literature in any very wide sense, or gaining much taste for it. These students also passed examinations with *marked* success. They recited passage after passage, and illustrated by maps, etc., in a way that was really astonishing. I myself once heard a class who had been studying Gray's *Elegy*, examined in one of the large schools of — Boston, in this wise: The committee were requested by the master to mention some word, any word in any part of the poem. When this had been done, the first boy at once recited the whole stanza in which that word occurred, and so on with another word, another boy and another stanza. The excellence of the work in this branch having been thus tested by the committee, a hush of admiration ran through the room, as every boy promptly reeled off the four lines containing his word.

One trouble with the first method was that we got nothing whole. The trouble with the second was that we got one very whole thing of one author, but nothing more. But we were improving, and in course of time the publishers came to our aid and undertook to publish in cheap form the principal works of the principal authors. At last we began to see light, to believe that some good might arise even from publishers' catalogues. Any school study of Literature is a vain thing if it do not cultivate the artistic taste of the pupil and leave him hungry for more. The two methods above referred to had done neither of these things. It is now possible to do both. It seems to me that many teachers have too much reading done in the class. I find much better results when there is a definite portion given to be read at home by the pupils, or when a certain time is allowed for the reading of one work. The recitation time can then be devoted to probing the home work by judicious and searching questions, such questions as cannot be answered by a pupil who has

not read his author with some degree of thoroughness. These questions should not be upon the text directly, for such may be answered by possibly one reading. They should not be upon words or figures of speech. They should go deeper, and by their character show the student how thoroughly he ought to read, and with what aim in view he ought to read. Without such reading as may be thus given, the most conscientious student may do a great deal of reading with not much real profit to himself, because he does not know what to look for. Questions involving comparisons of different passages are of value, questions which start a different view of the subject from that which the author has taken; also questions as to the use of a certain word in that particular place. In reading dramas, questions as to the characters of the persons represented, and whether those characters are consistently maintained in every utterance or action of the person, are most excellent. The character itself may not be of any great value, but the amount of careful and persistent reading and re-reading which the pupil will have to do to make up his mind, and to defend his position by quotations is of immense value.

In passing, it may not be amiss to suggest that such work as this in the Literature class will furnish unlimited material for essays to the teacher of English in the same school; and no school is deserving of the name where the teachers of such related branches do not in this way play into each others hands.

It has occurred to me that it might be of value to some teachers to give the list of such cheap reprints as we are at present using for our Literature classes, in the order in which we are using them and with the publishers' names.* I give the list going backward in time, as we use it, though of course some teachers may prefer to use it the other way. There are valid reasons for both methods:

Irving, Selections from Sketch Book.

Bryant, Thanatopsis and Miscellaneous Poems.

Webster, Bunker Hill Orations.

Tennyson, Elaine and Miscellaneous Poems.

Emerson, Self Reliance, &c., Lovell, 14 and 16 Vesey St., N. Y.

Carlyle, Hero as Prophet.

Ruskin, Selections from "Modern Painters."

Thackeray, " " Roundabout Papers.

* With the exception of Emerson, Spencer and Chaucer, the editions used are those published by Clark & Maynard, 771 Broadway, New York.

Scott, Lady of the Lake.
 Byron, Prisoner of Chillon.
 Burns, Cotter's Saturday Night and other poems.
 Keats, Eve of St. Agnes.
 Coleridge, Ancient Mariner.
 Wordsworth, Excursion, Book I.
 Cowper, Task, Book I.
 Goldsmith, Deserted Village.
 Gray, Elegy and Bard.
 Addison, Sir Roger de Coverley.
 Pope, Essay on Criticism.
 Dryden, Alexander's Feast, &c.
 Milton, Comus, Paradise Lost, Book I.
 Bacon, Essays.
 Shakespeare, say 3 plays.

Spenser, Fairie Queen, Book I. Macmillan, 112 4th Ave., N. Y.

Chaucer, Prologue, Knight's Tale, " " " "

The pupils do all their reading at home. They bring note books to class in which they have, as they read, written answers to certain points. They also generally come ready to give from memory some quotation which has particularly struck them in what they have read. The recitation, of course, under the skilful leading of a mature mind, will open several new points of view, develop new beauties in the author, and will furnish a guide to the student as to how he is to read. The points above referred to are at present the following; others may be added at any time as the work develops:

Lists to be made in note books for each lesson assigned
 of { 1. New words.
 { 2. Historical, biographical or geographical names.

Any passages not understood to be marked in text-book for questions.

Favorite passages on account of beauty of thought or expression to be marked.

Characteristics of style to be noted; as in

Prose,

Sentences { 1. Long or short.
 { 2. Complicated or simple.
 { 3. Wordy or condensed.
 Choice of words.

Poetry.

Versification, smooth or otherwise.

Use of alliteration.

Kind of rhymes.

Choice of words.

I have only to add that this kind of work has stood the test of two or three years in class-room, with satisfactory results. The recitations are not recitations in Biography or English Grammar, nor are they exercises in Reading, but really lessons in a fine art. The pupils are interested and do gain some idea of the author as an individual artist. They become anxious to read more from the same sources, and they really acquire a growing taste for good literature. This seems to me the end of such a study, and I am therefore hopeful that we are on the right track. With this confidence we shall follow on in it, but seeking constantly for new light and better ways, for nothing is as fatal to any method of teaching as crystallization. That process belongs to a lower stage of being than the human mind, and any method which seems in danger of that satisfied result, needs a vigorous shaking.

“For us, oh friends, no barriers be,
For us no sluggard rest ;
Each street leads downward to the sea,
Or landward to the west.”

And when they cease to do so, we had better stop teaching.

THE TEACHER AS A SKILLED LABORER.

CHARLES HENRY DOUGLASS, CONNECTICUT LITERARY INSTITUTION,
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A vigorous and practical thinker has recently said in substance that teaching is an art founded on skill, not on scholarship; that it is a "craft not based on erudition at all." Such words from a leading educator are significant. The time when evidence of mere scholarship will satisfy a school or college board, has passed away. The public no longer trusts its youth without question to the care of book-worms or newly-fledged teachers recruited from the ranks of college honor men. There is a demand—and a just demand—for tangible results, and the learned man is pushed aside to make room for the skilled craftsman. The tendency is a good one; it is the pledge to the present generation that the next will be well trained.

Every radical change, however, in the method of an existing institution is liable to be pushed to an extreme. There is danger of forgetting that in proper education the mind gains much that eludes the examination or graduation test; much that refuses to show itself on parade; much that lies out of the control of the will. It came unsummoned and lies dormant until maturer years call it forth. It is the vital part of education—the germ that develops with the growth of life. All else is mere husk, which may have incidental uses, but whose real use is to protect the seed and supply its first nourishment.

The narrower the range of a mind, the more prominent is its special bent. So a teacher thoroughly trained in a single subject always impresses himself as a specialist—a man of one idea—while the teacher of broader culture who is the equal of the mere specialist in his skill, never parades his mere skill as his stock in trade. In the class room the man of capacity to teach, whether he is trained in one science or language or in many, concentrates attention upon the single subject in hand. If skilled in the art of instructing he is neither diffuse nor wandering. The man of narrower culture, by force of personal magnetism and lucid thought impresses the subject as with a hot iron. His mind becomes the pattern for the minds of his pupils, for there is no denying the fact that the pupil unconsciously adopts the tone and scope of mind of his teacher. The man

of broader culture does all this as effectively as his would-be-rival, and he does more. He makes his classes familiar with the workings of a mind of a higher and broader type. He can unconsciously diffuse an air of culture that reaches out of his own subject and connects it with the whole circle of knowledge. He can bring to his recitation not only the subject itself, with its own life, but vitalized also with the life and light of all that the wider range of his vision can reach. His pupils gain not only aptness, skill and discipline, but a breadth and depth that are worth as much. The teacher of limited or purely specialized training can never do this. He who has skill *and* culture is as successful as the narrow man in his special subject, and accomplishes the rest gratuitously and without consumption of time.

No corps of teachers made up of merely skilled instructors ever educates in any true sense. No one subject well taught gives true culture. No group of subjects taught as isolated and independent departments of knowledge, gives much depth of culture.

The great impulse to learning in this century has arisen from the cross-fertilization of science, language, history, art, politics and religion. The growing mind cannot be properly developed by pigeon-holing it with language, science and mathematics. It must be taught to see what Plato calls "the relation of things;" its individuality must be developed; it must be inspired—breathed into—with the breath of life. The "trained craftsman," the teacher whose foundation is mere "skill" in some one thing, can never do this higher work. He doubts whether it belongs to education at all.

Many a man who looks back upon his school and college days, holds in affectionate remembrance as the man who helped his after life most, some instructor perhaps not superior to his associates as a teacher, but who had a genius for awakening the individuality of his pupils, and for creating a desire for the best things, and gave them a view of the heights to which men of brain might climb.

The sentences quoted at the beginning of this article were well said. They ought to be dinned into the ears of every teacher who puts his sole hope in scholarship or erudition, until he adds skill and trained method to his attainments. The fact which this article tries to make plain, ought also to be forced upon the attention of every narrowly trained specialist in teaching, until he shall reach out and grasp all that his capacity will permit of the great inheritance of the good, beautiful and true that the ages have left us.

COLLEGE REQUIREMENTS IN ENGLISH.

At the meeting of the Massachusetts Teachers' Association last November, Prof. Shipman of Tufts College, read before the High School Section a temperate and well-considered paper on the subject of "English in Secondary Schools." An abstract of this paper has already been published, and has doubtless come to the notice of many of our readers. Dr. Shipman offered no plan for the adjustment of existing difficulties between the colleges and the preparatory schools in the matter of English. Assuming that these difficulties arose largely from the lack of consideration thus far given to the subject, he wished merely to stimulate discussion in order to arrive at a better understanding of the work in English now done.

The discussion of Dr. Shipman's paper was opened by Mr. Collar, Headmaster of the Roxbury Latin School. We quote somewhat at length from what Mr. Collar said because it seems to us to voice the sentiments of many preparatory teachers on this subject.

"I have listened with a good deal of pleasure to Dr. Shipman's paper, because the subject has been treated in a candid and judicial manner, and with a manifest appreciation of the difficulties which the present requirements for admission to college in English impose upon the schools. If he finds the results of the training in English unsatisfactory, his criticisms are neither depressing nor irritating in spirit and tone, like those to which he has referred, that have issued from a neighboring university, and have been wide spread over the country.

"But I confess my disappointment that in substance and in fact he seems to confirm much that has been said of the deplorable state of training in English in secondary schools. Reluctantly he is forced to confess that the outcome, *judged by the college entrance examination*, is exceedingly unsatisfactory. He finds that only one or two in a hundred attain to the maximum mark, and only thirty in a hundred get a mark of seventy-five. It would be interesting to know what per cent get between eighty-five and a hundred, for those, I presume, might be said to pass the examination with credit. Perhaps the number is so small that he did not care to state it.

"We have then, from the professors of English in two colleges in this vicinity, testimony that would seem to indicate pretty clearly a substantial failure on the part of the schools to meet the requirement of the colleges in their department.

"Dr. Shipman would make large allowance on account of the lack of time for English in the schools, and for the immaturity of candidates at the time of admission to college; but there still remains no inconsiderable proportion of failure which seems fairly chargeable to poor training. That there is a good deal of poor teaching in English, as in other subjects, I do not question; but on the other hand, I am satisfied that there is much more good work done than the colleges find evidence of. I happen to have personal knowledge of the instruction in English in several prominent feeders of these two colleges, and in my judgment it is not poor in any one of them, and in some is positively excellent. I have no doubt that the same is true of a good many other schools. What is the explanation of this apparent contradiction? It is not probably a mere difference of individual judgment, though some circumstances would appear to point that way. I may be permitted to say that of the boys whom I have sent to Harvard during the past five years, two or three on the average, each year, seemed likely to distinguish themselves in English on the entrance examination. In fact not one has passed "with credit," though several were able, once in college, to do work most satisfactory to their instructors.

"This serious allegation of poor work in English in the schools does not rest upon any actual inspection of the training by the colleges. It appears to rest solely upon the test of the entrance examination. That test is sufficiently unlike other tests of the same examination to raise the question whether it is not in some measure deceptive. The examination in English, set now by the associated colleges of New England, consists of two parts, the correction of bad English and the writing of an essay. The time allowed at Harvard is an hour and a half. Of this time I understand that about thirty minutes is supposed to go to the correction of faulty English, and an hour to the production of an essay. From fifteen to twenty sentences are set for correction, so that not to exceed two minutes on the average may be allowed for each sentence. I have heard an intelligent, educated teacher say that it has sometimes taken him twice or three times as long to make out the intended meaning of a single sentence, and that not unfrequently he was

unable to satisfy himself how a sentence should be corrected. The corrections are required to be made on the printed paper, though sometimes the only thing to do seems to be to recast an entire sentence. The perplexity of the candidate is still further increased by an implied hint, at the head of his paper, that some sentences may not need emendation. If the number of the sentences were much smaller, or if there were a plenty of time, this would be a commendable feature of the examination; as it is, it is an added torture.

"This preliminary task seems to be admirably calculated to compose the mind of the candidate for the writing of an original essay. The subject of the required essay is, of course, unknown. It may be any one of four or five, for to that degree a choice is allowed the candidate, of the innumerable topics that an examiner may fairly draw from the list of authors previously prescribed to be read. The reading of these books is supposed to be spread over two or three years preceding the examination. I am addressing a body of mature, intelligent, educated men and women, more or less practised in composition, and I ask you what you would think of the fairness of such a test as applied to yourselves. Let me suppose that within two or three years you have read, with interest and attention, eight or ten works; and that now, *in the quiet of your own libraries*, you are required to write an original essay, within sixty minutes, on some one of a very small number of subjects, drawn by an examiner from any one of those works. Observe that the examination is intended to be not merely a test of your ability to write acceptable English. It presupposes unusual readiness in composition, with all that that implies, and a considerable amount of literary knowledge. This knowledge too must be at your finger-ends. I think you would declare the test an unreasonable one. You might succeed, but the chances are that you would not. It might easily happen that, by the expiration of the time you would not have put half a dozen sentences together.

"I forgot to add that the four or five subjects, from which you would be allowed to choose, would be selected by the examiner from a single work. It might be one that had not made a strong impression upon your mind, or one that was read so long ago as to leave rather dim recollections, either a circumstance that would greatly increase the chances of failure. If you should pronounce such a test preposterous, I do not think you would be beyond the mark.

"But this is an accurate description of the test to which boys of eighteen and nineteen are subjected. Or rather it is this under the most unfavorable conditions; namely, in the hottest weather, under the eye of an examiner, in a room crowded with anxious, nervous candidates, and with the fear impending of failure and disgrace. Failure seems to me almost predetermined. No wonder that so few acquit themselves with credit. The wonder is that any should.

"Yet, as I understand, it is on the sole ground of the generally unsatisfactory performance of applicants for college under such an examination that the teaching of English in the schools is pronounced a lamentable failure. I have already indicated my opinion of the character of this requirement, which the collective wisdom of eight or ten colleges has devised, but I want to state it explicitly. It is in my judgment difficult to the verge of impossibility and unreasonable to the verge of absurdity. But I should be unjust, if I did not cordially recognize the willingness, or rather earnest desire, of the colleges to modify the English requirement so soon as something generally acceptable can be agreed upon."

In this connection it may not be amiss to call attention to what the colleges are requiring in English. This we are able to do thanks to the kindness of Mr. F. A. Hill, of Cambridge.

The most of the New England colleges represented in the Commission on Admission Examinations are following substantially the recommendations as to requirements in English made by the Committee, (Professors A. S. Hill, C. F. Johnson, T. W. Bancroft, W. R. Shipman,) appointed by the Association of Colleges in New England, in October, 1885. The following statement has been prepared in order to exhibit the degree of uniformity now existing. It covers the four years 1887, 1888, 1889 and 1890, and is divided into three sections:

- § 1. The books prescribed in all the lists;
- § 2. The requirements of the several colleges;
- § 3. Remarks as to peculiarities of requirement.

§ I. THE BOOKS PRESCRIBED IN THE LISTS.

Shakespeare.

- I. Julius Cæsar,
- II. Merchant of Venice,
- III. Twelfth Night,
- IV. As You Like It,
- V. Midsummer Night's Dream,
- VI. Tempest.

<i>Johnson.</i>	VII. Lives of Milton and Dryden,
	VIII. " " Addison and Pope,
	IX. " " Swift and Gray,
	X. Vanity of Human Wishes.
<i>Macaulay.</i>	XI. Essays on Milton and Dryden,
	XII. Lays of Ancient Rome,
	XIII. Life of Johnson,
	XIV. Essay on Boswell's Life of Johnson.
<i>Milton.</i>	XV. Paradise Lost, Books I. and II.
<i>Dryden.</i>	XVI. Alexander's Feast.
<i>Scott.</i>	XVII. Quentin Durward,
	XVIII. The Abbott,
	XIX. Marmion,
	XX. Rob Roy.
<i>Irving.</i>	XXI. Bracebridge Hall.
<i>Wordsworth.</i>	XXII. Michael.
<i>Whittier.</i>	XXIII. Snow Bound.
<i>Blackmore.</i>	XXIV. Lorna Doone.
<i>Pope.</i>	XXV. Rape of the Lock,
	XXVI. Essay on Criticism.
<i>Thackeray.</i>	XXVII. English Humorists.
<i>Dobson.</i>	XXVIII. Eighteenth Century Essays.
<i>Miss Austen.</i>	XXIX. Pride and Prejudice.
<i>Gray.</i>	XXX. Elegy written in a Country Churchyard.
<i>Swift.</i>	XXXI. Gulliver's Travels.
<i>Goldsmith.</i>	XXXII. Vicar of Wakefield,
	XXXIII. Deserted Village.*

§ 2. THE REQUIREMENTS OF THE SEVERAL COLLEGES.

Remark. The Roman numerals indicate the books preceded by the same numbers in the lists in § 1.

A. The Requirements for 1887.

The full Association list consists of Nos. I., II., VII., XI., XV., XVI., XVII., XXI.

Boston, Dartmouth, Harvard, Trinity, Wellesley and Wesleyan prescribe the full list.

* Carlyle's Essay on Boswell's Life of Johnson, should be added to the above list. See under § 2, *D*.

Amherst omits II., VII., XI., XVI., XXI., but prescribes IV., XXII., XXIII., XXIV., in addition to those not omitted.

Brown omits II., XI., and prescribes the rest.

Tufts omits XI., XV., XVI., XVII., XXI., but prescribes XVIII. in addition to those not omitted.

Williams omits VII., XI., and prescribes the rest.

Colby does not follow the list, but prescribes VI. for grammatical analysis and for composition.

[See Remark 2, under § 3 of this statement.]

Bowdoin requires English Grammar and Composition, prescribing no authors.

Smith requires Grammar and Rhetoric, prescribing no authors.

[See § 3, Remark 3.]

Yale prescribes no requirement in English.

B. The Requirements for 1888.

The full Association list consists of Nos. I., III., VIII., XII., XXI., XXV., XXVI., XXVII., XXVIII., XXIX.

Boston, Dartmouth, Harvard. Trinity and Wesleyan prescribe the full list.

Amherst and Williams omit XXVII., XXVIII., XXIX., and prescribe the rest.

Bowdoin omits VIII., XXV., XXVI., XXVII., XXVIII., XXIX., and prescribes the rest.

Brown omits XII., and prescribes the rest.

Tufts omits XXV., XXVI., XXVIII., XXIX., and prescribes the rest.

Wellesley publishes the full list, but allows the omission of XII., XXV., XXIX.

Colby, Smith and Yale presumably as for 1887.

C. The Requirements for 1889.

The full Association list consists of Nos. I., IV., IX., XIX., XX., XXVII., XXIX., XXX., XXXI.

Boston, Dartmouth, Harvard, Trinity and Wesleyan prescribe the full list.

Amherst omits XIX., XX., XXI., and prescribes the rest.

Brown omits XXXI., and prescribes the rest.

Tufts omits XXIX., XXXI., and prescribes the rest.

Bowdoin, Wellesley and Williams publish no requirement. We may assume that they will follow the lists with perhaps some omissions.

Colby, Smith and Yale presumably as for 1887.

D. The Requirements for 1890.

The full Association list consists of Nos. I., V., X., XII., XIII., XIV., XVII., XXVII., XXXII., XXXIII., and Carlyle's Essay on Boswell's Life of Johnson, (omitted inadvertently under § 1.)

Harvard, Trinity and Wesleyan prescribe the full list.

Brown omits XVII., and prescribes the rest.

Dartmouth omits XIII., and prescribes the rest.

The other colleges, (Amherst, Boston, Bowdoin, Colby, Smith, Tufts, Wellesley, Williams and Yale,) publish no requirement for 1890. Probably in each case we may expect requirements similar to those previously prescribed.

§ 3. REMARKS AS TO PECULIARITIES OF REQUIREMENT.

1. In general, all colleges following the lists demand that the books prescribed shall be read, and make the examination to consist:

(a.) In writing a short composition on a subject drawn from the books prescribed;

(b.) In criticising specimens of English.

2. Colby prescribes "*Grammar*, analysis of Shakespere's *Tempest*. *Composition*, on one of the characters in the *Tempest*."

3. Smith prescribes "so much Grammar and Rhetoric as will enable the student to present a correct letter or simple essay."

4. It will be noticed that Bowdoin in 1887 requires English Grammar and Composition. "In 1888, and thereafter, each applicant will be required to write a short composition based on standard works in English Literature." See what is said of Bowdoin, in § 2, C.

5. Harvard announces that "The amount of reading prescribed for the examinations of 1891 and thereafter will be somewhat greater than at present."

OFFICIAL REPORT OF THE THIRD HOLIDAY CONFERENCE OF THE ASSOCIATED ACADEMIC PRINCIPALS OF THE STATE OF NEW YORK, AT SYRACUSE, DECEMBER 27 AND 28, 1887.

TUESDAY MORNING.

In the absence of President G. R. Cutting, the meeting was called to order at 10 A. M., by Vice-President C. T. R. Smith, of Lansingburg Academy. Principal A. C. Hill, of Cook Academy, was chosen Secretary *pro tem*.

Principal Bacon read the following letter from President Cutting:

LAKE FOREST, ILL., December 23, 1887.

To the Associated Academic Principals of the State of New York :

I had hoped until recently to be present at the Holiday Conference of 1887, that I might, in yielding up my office as president of your association, express personally to the members my thanks for the honor that they have bestowed upon me in electing and re-electing me as president of their body. My official duties in Lake Forest University will occupy the days of your conference.

In retiring from the office and from active membership in your body, let me make an acknowledgement. Every meeting with the teachers of New York State has been an inspiration to me personally; and while I shall continue to serve the cause of academic and collegiate education, I shall never cease to feel my great indebtedness in all ways to the New York teachers; while my close personal associations with these teachers during sixteen years will always be among the most prized associations of my life.

I venture to express the hope that the Holiday Conference—child as it is of the Annual Convocation—may, in the advancing years of its existence, realize through its influence the hopes of its projectors in supplementing—never aiming to supplant—the parent organization, in its efforts to promote the interests of secondary education in the Empire State. I shall hope that the Associated Principals may find not only in the Conference of '87, but in many others to follow, such a practical, helpful spirit in its meetings and such a growing spirit of fraternity among its members that it shall include in its roll every live teacher in the secondary schools of the State.

May I make for the Conference of '87 a single suggestion? After my experience of the previous years, I had resolved that I would this year recommend for the comfort and satisfaction of my successor, that a stenographer be secured to assist the president and secretary in making up their "Official Report" of the Conference for the ACADEMY. I am satisfied that this method of work will alone save annoyance and secure completeness and accuracy. Now that I myself shall be dependent on this "Official Report" for my knowledge of the educational trend in New York

State, I have an added selfish reason to venture the suggestion, in behalf of the large number of secondary teachers who are readers of the *ACADEMY*, who can not be with you in person, but who follow your proceedings with added interest year by year.

Believe me as ever, Yours truly,

G. R. CUTTING.

On motion of Principal Benedict, it was voted to employ a stenographer next year.

Principal Bacon, chairman of the Executive Committee, suggested that each speaker be limited to five minutes, and that no one be allowed to speak twice on the same subject except by unanimous consent.

The Chair announced that this order would be enforced.

The Committee on Unification of the Departments of Education, appointed last year, reported through chairman Bacon that the committee met and did its work, but that nothing had been accomplished in the way of legislation.

The report was accepted and the committee discharged.

The committee appointed to represent the Associated Principals at the Conference of College Presidents, in connection with the convocation in June, reported that a series of resolutions was prepared and submitted to the Conference. The discussion, however, resulted in nothing definite, and the question of college admission remained much as before.

On motion, the consideration of the report was deferred.

The Committee on "Additional Appropriations to Secondary Schools," reported through Principal Cheney. He said the effort had been entirely successful. On motion, the report was accepted and the thanks of the Associated Principals were extended to the officers of the Board of Regents and others who had aided in the movement.

Dr. A. B. Watkins suggested that whenever legislation was desired in the future, each principal make it a point to see the member from his district personally and explain to him the merits of the bill.

The first topic for discussion was "The Teaching of English." Principal Hunt, of Troy, said that in his school, the pupils were divided into small classes for composition work and that the entire time of one teacher and half the time of another was given to it. Oral as well as written expression was cultivated.

Principal Allen, of Rochester, said that the plan outlined in the *ACADEMY* for March, 1886, was still in use in that city with good success.

Principal Cheney said that in Kingston, instruction in English had not in the past received due prominence. But last year the Board of Education procured a special teacher whose duty it is to combine instruction in composition with elocution, the enunciation and proper pronunciation of words. Our school is divided into classes especially for this work. Some one or two of these classes recite every day. The most work of this kind is done during the first year of regular academic work. At the beginning of the second year pupils are required to take up Rhetoric in which composition work is continued. The third year they take up English literature and the work in English is continued. We have not yet devised a system which we think is perfectly satisfactory, but are, we think, improving in this direction and are striving to attain a system of teaching English that shall commend itself.

In answer to a question, Principal Bacon said there had been five Lyceums connected with the Syracuse High School since he had been there. His experience was that such organizations did well for a time and then died or "were killed."

Principal Carfrey said that in Waterloo the pupils of the academic department were divided into classes according to advancement, each class reciting once a week in composition. The work consisted in writing sentences, constructing short paragraphs, getting pronunciation of words, putting thoughts into the most concise language and in writing complete essays. The pupils were also divided into two societies, which prepared regularly the rhetorical work of the school. This plan met the present demand, yet he did not regard it as perfect.

Principal Ottaway said the same plan had been adopted at Canastota. To add interest to society work variety is sought. He thought reading was dropped too early in school life, and had introduced an advanced reader. He regarded newspapers as corruptors of English.

On motion, a committee, consisting of Principals Payson, Allen, Fancher, Hunt and Benedict, was appointed to prepare resolutions embodying a summary of the discussions and to report Wednesday morning.

Principal Payson asked whether putting literary work into the hands of societies did not provoke unpleasant rivalries. Principal Carfrey thought not.

An expression was taken at this point as to how many relied in large part on societies to do literary work. Seven voted. It was also found that five schools employ special teachers.

Principal Cook said that his best teacher gave his entire time to instruction in English. A feature in the work of the last year had been the writing of letters,—business letters,—addressed to a School Commissioner or Board of Education. These were examined by the teacher and marked in such a way as to indicate where there were mistakes, leaving it to the pupils to find out what the mistakes were. Miss Brackett asked the educational value of such a search after mistakes. Principal Cook replied; "The same educational value that there is in the search for any knowledge not possessed."

Dr. Watkins said that they had noticed at the Regents' office, an improvement in the English of the examination papers sent in. He believed that more attention was given to the subject than heretofore.

Professor Clark, of Syracuse University, said he had just waded through a lot of Freshmen essays and knew something of "English as she is wrote." He suggested that one chief mistake in teaching the art of composition is in doing too much for pupils,—doing their thinking for them. Teachers make the necessary corrections instead of suggesting them for the pupils to make.

Principal Taylor said his plan was to begin the work in English very early, giving pupils nine years in the grammar school and four in the high school. He outlined the work in the high school as follows: First year, Bardeen's Rhetoric; Second year, "How to write," by Abbott; Third year, Synonyms; Fourth year, Bacon's Manual of Gesture.

Principal Hunt thought an outline of work was needed, and wished some one would prepare one. He did not believe in letting pupils correct their own work.

Principal Keyser recommended assigning a topic for composition work several days in advance, and having the writing done in the presence of the teacher.

Principal Sherwood said: During the first year we review the most practical points of English grammar, then the common figures of speech. No essays are required until the teacher has first given careful instruction in that direction. Students are constantly drilled in correcting the mistakes of themselves and others. In this way we strive to make them more careful writers and better able to cor-

rect their own work. During the last term of the year we also give considerable drill in elocution. In the second year Rhetoric, and in the third year, English literature are studied. In addition members of the A and B classes take part in rhetorical exercises before the whole school once in two weeks. This has aroused great interest. It is also a valuable means of general culture for those who do not take part.

Miss Brackett said : We are too anxious to see the fruits of our labors at once. We ought, as teachers, to be willing to wait many years for results, and not be too eager to make boys and girls mature men and women. Pupils in a secondary school have little or nothing to write about. They cannot think, and hence have nothing to write. The matter of composition should be given the pupils, and the form only insisted upon from them. She thought correct spelling ought not to be insisted upon, especially in the present chaotic state of that branch. Some pupils have a defect, analogous to color blindness, which makes correct spelling an impossible attainment. She placed Rhetoric, as a study, on a level with mythology, curious, but practically worthless.

An expression was taken as to whether particular errors should be indicated in correcting compositions, or whether pupils should be left to detect them when pointed out in a general way. Yeas, ten ; nays, fifteen ; many not voting.

Principal Hill said that he did not agree with the statement that pupils in the secondary schools, or even in the lower schools, cannot think. It was a fact in many instances that they did not think, and this was at the bottom of much of the trouble about composition work. The matter is of the first consideration, and there is no need of form without it, and, given the matter, the form will take care of itself in large part. If a child is taught to see clearly, to think logically, and to define accurately, he will express himself, orally or in writing, in clear and forcible language. Thinking is the hardest work a pupil has to do, and he delays it as long as possible. Our present invertebrate method of feeding pupils on milk for so many years keeps them children too long. Let us set them to thinking as soon as possible, then they will have something to say and be able to say it.

On motion the matter was referred to the committee on resolutions.

Adjourned until 2 P. M.

TUESDAY AFTERNOON.

Conference called to order at 2 P. M.

Report of Committee on Conference with College Presidents was taken up. On motion the report was accepted and the committee discharged.

Principal Bacon thought the question of college admission too important to be dropped. The desired end had not yet been attained. Admission into college was altogether too easy, especially in the sciences.

On motion the question was made a special order for the evening session.

The following resolution was offered by Principal Benedict :

We, the Associated Academic Principals of the State of New York, remembering the energy, skill and great executive ability of Principal G. R. Cutting in bringing the principals of our secondary schools into more cordial and sympathetic relations, thus strengthening the teaching power of the profession in the State, do now express our appreciation of his efforts as originator and president of this Association during the first two years of its existence.

We record our high estimate of his worth as a courteous Christian gentleman, and a progressive co-worker for fifteen years. In his departure to continue his labors in another State, this Association, having lost an efficient and enthusiastic supporter, extends to him its best wishes for a prolonged career of usefulness in his chosen field.

Dr. Watkins, in seconding the adoption of the resolution, said : "Permit me, Mr. Chairman, in seconding these resolutions which recognize the invaluable services of Principal Cutting in the inception and organization of this conference to call the attention of the members of the conference to the further indebtedness to him of the secondary schools in this State. Mr. Cutting came into this State some fifteen years ago, a stranger in the State and to its system of education, to organize a new school at Waterville. This he did in a most effective and masterly manner, and at once began to identify himself, with the enthusiasm characteristic of him, with the interests of secondary education in the State. He became an early and constant attendant at the Convocation and an active participant in its discussions. He acted as chairman of a committee upon an inquiry into the making of the Regents' examinations, and made an extensive and valuable report upon its excellences and defects, based upon a series of inquiries made in a systematic manner among all the

schools in this State, where these examinations are held. He was also an active and persistent promoter of the Inter-Academic Union in organizing a system of examinations in the branches taught and of elocutionary and rhetorical contests among the schools. I feel that the cause of secondary education in the State owes much to Mr. Cutting in these particulars and hence take the liberty to call the attention of the conference to these additional services performed by him."

The resolution was unanimously adopted.

Mr. Gadsby, of Oswego, then read a paper on "Teaching Greek."

Principal Peck said that the cause of classical education owed a great debt to Professor Hale, of Cornell, for the admirable exposition of his method of teaching Latin. The same method could be applied to Greek, as Mr. Gadsby had clearly shown.

Mr. Somers asked if a long and complex sentence could be read by this method. Prof.^s Hale thought it could,—a part at a time.

Principal Cook spoke very enthusiastically of the results obtained by this method in the Potsdam Normal School. A class in Cæsar easily completed four books in a year and a half after beginning the study of the language.

On motion, the thanks of the Association were extended to Mr. Gadsby for his excellent paper.

The question of the Regents' examinations in Geometry, was next considered.

Principal Cobb thought the examinations should contain more original work, and should be limited to plane Geometry.

Principal Allen thought original work would take too much time in an examination.

Principal Graves thought inventional geometry should be taught in the class but could not well be introduced into Regents' examinations. The examinations were, however, made too easy. One of his boys passed it after a term's study.

Ex-Principal Clark, of Canandaigua, said that geometry was not designed to make inventors but reasoners.

Principal Lovell said there were two objects in all study, first, the acquisition of knowledge, second, the development of mind. Hence examinations on all subjects should be set to test these results.

Principal A. C. Hill thought the fact of a bright boy's passing an examination after a single term's study did not prove the examinations too easy. There would always be such exceptions. He

regarded the examinations at present as a fair test. They were not designed for specialists.

Mr. Larkins thought a boy who could pass an examination with less study than others was a good boy and ought to pass.

Principal Taylor wished more alternate questions and more credits.

Dr. Watkins said the differences of opinions as to how the subjects should be taught and how the examinations should be conducted were refreshing, as out of them came progress. What to put in and what to leave out in making up the questions was a difficult problem. The papers were designed for pupils of average ability.

Principal Hunt objected to optional questions and more credits as an effort to squeeze pupils through the examinations.

Principal Fuller said that pupils ought not to have a remedy for mistakes. They should suffer the consequences of their blunders, and not be allowed to make up for errors by answering optional questions.

Principal Cheney was opposed to any change that would lower the standard of the examinations. They were highly esteemed now by educators in this and other states. He hoped to see the time when the normal schools, the state department and the colleges would accept the credentials of the Regents in the subjects they cover; therefore the standard should not be lowered.

Principal Holden was opposed to optional questions in other subjects, but favored them in geometry.

Principal Morehouse objected to such an innovation as tending to bring the examinations into disrepute. We are the friends of the system and should defend it.

Principal Lovell spoke to the same effect. He said the standard was being steadily raised and the examinations were gaining credit with educators.

Principal Allen was in favor of keeping the examinations where they are.

On motion, the subject was laid on the table.

Dr. Watkins raised the question whether the special topics in history and literature are accomplishing good results?

It was moved "that it is the sense of the Associated Academic Principals that the questions given by the Regents upon special topics in history and literature be discontinued." After discussion, the motion was put and lost.

Moved that the chair name a Committee on Nominations. Carried.
Adjourned until 7:30 P. M.

TUESDAY EVENING.

Conference assembled at 7:40.

The Chair named as Committee on Nominations, Principals Benedict, Robinson and Norris.

Moved that a committee of three be appointed by the Chair to confer with a similar committee from the colleges to formulate a uniform standard of admission into the colleges of the State.

Principal Keyser said the views of the Academic Principals as expressed in the resolutions presented at the conference of College Presidents were unjust to the smaller schools.

Professor White, of Cornell, said that the question of interest at that University just now was whether pass cards should be accepted. The feeling was that they are not sufficient in themselves, as they do not indicate, especially in the modern languages, the amount of work required for admission into the University. Inquiry had revealed the fact that not more than half the schools have facilities for thorough instruction in French and German.

Principal Hill thought the schools could do the required work if they knew what it was and could hold the pupils long enough. Few colleges in the State required either French or German. The colleges are too ready to receive pupils before they are properly fitted, and then to blame the schools because they cannot do college work well. He thought the individual cards were as good evidence in the subjects they covered as the Regents' diplomas. In either case the evidence of the cards should be supplemented by the certificate of the principal of the school where the work was done.

Principal Bacon said the practical question of the colleges was how to get pupils away from the secondary schools, the practical question of the secondary schools was how to retain them. He mentioned instances in which pupils had failed in their work in the high school and had been admitted into a university in some scientific or special course.

Principal Emerson deplored the ease with which students could get into Cornell. He mentioned the case of a young man who studied algebra and geometry for one year in the Buffalo High School and did very poor work in them and then went and applied for admission into Cornell and was received.

Principal Robinson saw no cause of complaint at the attitude of the colleges regarding admission of students.

Principal Cheney thought that the colleges ought to formulate uniform requirements for admission into parallel courses of study. To the public schools where young men and women are preparing for different colleges in the State, this is a consummation to be wished, and one that, undoubtedly, would be as helpful to the colleges as to the schools.

An expression being taken to ascertain how many schools lacked facilities for instruction in modern languages, it was found that only two schools represented in the conference lacked such facilities.

Principal Sheldon, as the representative of normal school teachers, spoke regarding the relations of normal and secondary schools. He said it was the desire of normal school men to have a closer and more harmonious relationship established between these schools. He believed that the legitimate work of the normal school was professional, and that strictly academic work was outside its province. He asked that a committee be appointed by the conference to confer with a similar committee from the normal school with a view to securing coöperation in the work. He thought the immediate need was the development of the work of teachers' classes in academies, and favored an effort to secure larger appropriations for that work.

Principal Hill said that there ought to be perfect harmony among the various schools of the State, and there might be if the sentiments expressed by Principal Sheldon could prevail. There could be no real harmony, however, until the normal schools confined themselves to their legitimate work. So long as the State entered into competition with private enterprise in providing academic instruction, so long harmonious action was impossible. He was in hearty accord with Principal Sheldon's proposals and rejoiced to learn that the normal school principals were opposed to the policy of having academic departments connected with normal schools. A protest should be entered against the State's making any more contracts to maintain academic departments in such schools.

Principal Cook said normal school principals wished to help the academies. They took academic pupils because they were compelled to, not from a desire to do so. Only those were wanted who were fitted to take theoretical and practical work preparatory to teaching.

Inspector C. E. Hawkins spoke of the work being done in the teachers' classes, commending it highly.

Adjourned until 9 A. M.

WEDNESDAY MORNING.

Conference convened at 9:20.

The Chair named as committee to confer with colleges, Principals: George A. Bacon, A. C. Hill and Roland S. Keyser.

Principal Graves introduced the following resolution:

Resolved, That in the opinion of the Associated Principals of the State of New York, the normal schools should confine their instruction strictly to the education of teachers for the schools of the state and that we protest against the organization hereafter of normal schools with academic departments.

Deputy Superintendent Skinner was called upon and said: He did not think there could be too many normal schools, but they should be wisely distributed and confined to their legitimate work. The state should provide good schools for the country districts. He thought academic departments could be maintained in the normal schools hereafter established, for the benefit exclusively of the villages where these schools were located.

Principal Hill could see no justice in shutting out pupils from a distance, and admitting those from the immediate locality, inasmuch as the schools are maintained by general taxation, and the remotest citizen in the state is taxed equally with the one whose property joins the normal school lot. There was no middle ground. The state should establish normal schools for the exclusive purpose of preparing teachers for the schools, and should do no academic work.

Principal Maynard thought that the new normal schools should have no academic departments. Let existing contracts be kept but no new ones entered upon.

The question was called for and carried.

The Committee on Resolutions reported as follows:

Resolved, 1. That the increasing attention given by our schools to the study of English is gratifying and should be further encouraged, and the correction of errors of expression should be such as to stimulate the pupil's thought.

2. That experience proves the value of Prof. Hale's method of teaching ancient languages as set forth in his paper at the conference of 1886.

3. That the use of special topics in the English Literature and History Regents' examinations is helpful in arousing a spirit of original investigation.

4. That the plea of Dr. Sheldon for harmony between the normal and the academic schools calls sharp attention to the need of a more complete union among the educational forces of the state.

5. That it be the expressed opinion of the Associated Academic Principals that the time now prescribed by the Regents for the examinations in mathematics is the proper time.

6. That we the Associated Academic Principals of the State of New York highly appreciate the presence of Dr. A. B. Watkins, Inspector Chas. E. Hawkins and Deputy Supt. Chas R. Skinner; that we thank them for the encouraging words they have uttered, and express our satisfaction at the heartiness with which they have invited and the kindly spirit in which they have received the criticisms and suggestions made by this body with reference to their work.

7. We wish especially to commend the excellence of the questions sent out from the Regents' office, contributing as they do so effectually to raise the standard of scholarship in the secondary schools of the state.

8. That we recommend to the Board of Regents that the courses of study prescribed for the schools under their supervision be so arranged as to include the work required for admission to the professional work in the State Normal Schools, on condition that the State authorities having charge of these schools will accept the diplomas or certificates of the Board of Regents as evidence of proper qualifications to enter upon the professional work in said normal schools, without further examination.

9. That it is the sense of this Association that some arrangement ought to be made, by which the teachers in the rural districts may receive a more thorough preparation for their work; that a committee be appointed to urge this subject upon the attention of the heads of the educational departments of the State, and upon our legislature.

10. That in the judgment of the Academic Principals, at least one elementary training school for the preparation of teachers for the country district schools should be established in each county in the State, with a short course of three to five months, into which only those pupils may be admitted who have completed a prescribed course of study in the common English branches required to be taught in the public schools, and who hold a properly authorized certificate of such qualification.

11. That we urge upon our school authorities the importance of giving early attention to this matter, and to consider whether an arrangement cannot be made by which the present Teachers' Classes may be so organized as to do this work by enlarging their facilities and securing proper appropriations for their support.

12. That the instruction and training in these schools should be confined to a discussion of the principles of education, the application of these principles in teaching, together with practice in teaching under criticism, and with this view every such school should have connected with it a school of children which may be used as a school of practice.

13. That we deem appropriations for the organization and proper support of such elementary training schools of far more importance

to the educational work of the State than the establishment of more normal schools on the basis of the present organization of such schools.

14. That while we regard the present system of normal schools as an important factor in the educational work of the State, especially in the training of teachers for the union and graded schools, and that more of these schools will be required in the future, yet we do not regard them as competent under their present organization to meet the demands of the rural districts, and before more of these schools are established, some provisions, such as indicated by the foregoing resolutions, should be made for the training of teachers for the country ungraded schools.

15. That we request the colleges of the state to accept the Regents' diplomas instead of an entrance examination for the subjects covered by them.

16. That we appreciate the work done by THE ACADEMY, under the editorship of Dr. Bacon, and commend it to all engaged in the work of secondary education. We pledge Dr. Bacon our cordial support, and will aid in every legitimate way to increase its circulation.

After a full discussion these resolutions were unanimously adopted, one by one.

On motion of Dr. Watkins, Principal C. T. R. Smith was made Chairman of the Committee on Conference with normal school principals. Principal Cheney and Inspector Hawkins were added by the Chair.

The work proposed in the resolutions was referred to this committee.

The question of college entrance was then taken up.

Chancellor Sims said the relations of the college and fitting school were intimate, and the nearer colleges approached to a uniform standard of admission the better for both colleges and secondary schools. Syracuse University was the first to accept Regents' cards as satisfactory evidence of fitness in the branches covered by them, and the results had been satisfactory.

The question of admission by diploma, and also accepting individual pass cards was discussed at length by Principals Bacon, Lovell, Hill, Cheney, Robinson, Hawkins and Holden.

The Committee on Nominations reported as follows: For President, Principal C. T. R. Smith, of Lansingburg; for Vice-President, Principal Emerson, of Buffalo; for Secretary and Treasurer, Principal A. C. Hill, of Havana; Executive Committee, Principal Geo. A. Bacon, Syracuse; Principal P. T. Marshall, Hudson; Principal H. M. Lovell, Elmira.

These were unanimously elected as officers for the ensuing year.

On motion, all bills were referred to the Executive Committee.

The question of printing the minutes was left to the President and Secretary.

On motion, the Executive Committee was requested to call the next Conference for Thursday and Friday of holiday week.

Adjourned.

A. C. HILL, Secretary *pro tem*.

C. T. R. SMITH, Vice-President.

The following principals, and ex-principals eligible to membership under the constitution, are members of the Associated Academic Principals, and were present at the Holiday Conference of 1887:

C. E. Allen, Principal, Free Academy, Medina.
John G. Allen, Principal, Free Academy, Rochester.
George A. Bacon, Principal, High School, Syracuse.
A. G. Benedict, Principal, Houghton Seminary, Clinton.
N. L. Benham, Principal, Union School, Niagara Falls.
Anna C. Brackett, Principal, 9 West Thirty-Ninth St., New York.
H. A. Brown, Principal, Academy, Pulaski.
W. A. Brownell, Ex-Principal, Teacher of Sciences, High School, Syracuse.
J. H. Carfrey, Principal, High School, Waterloo.
W. G. Carmer, Principal, Union School, Lyons.
John W. Chandler, Principal, Free Academy, Jordan.
Francis J. Cheney, Principal, Free Academy, Kingston.
N. T. Clarke, Ex-Principal, Canandaigua.
C. N. Cobb, Principal, Union School, Waterford.
E. H. Cook, Principal, Normal School, Potsdam.
A. S. Downing, Principal, Union School, Palmyra.
Henry P. Emerson, Principal, High School, Buffalo.
Henry R. Fancher, Principal, Academy, Mexico.
Gardner Fuller, Principal, Union School, Batavia.
H. A. Gaylord, Principal, Union Academy, Belleville.
W. D. Graves, Principal, Delaware Academy, Delhi.
E. W. Griffith, Principal, Griffith Institute, Springville.
Welland Hendrick, Principal, Union School and Academy, Greene.
A. C. Hill, Principal, Cook Academy, Havana.
Fox Holden, Ex-Principal and Superintendent, Plattsburgh.
Leigh R. Hunt, Principal, High School, Troy.
M. J. Hunt, Principal, Union School, Madison.
Frederic C. Kane, Principal, Academy, Sanquoit.
John H. Kelley, Principal, Union School, Cocksackie.
R. S. Keyser, Principal, Union School, Middleburgh.
Charles D. Larkins, Principal, Normal School, New Paltz.
Herbert M. Lovell, Principal, Free Academy, Elmira.
John S. McKay, Principal, Franklin Academy, Malone.
P. T. Marshall, Principal, High School, Hudson.
J. E. Massee, Principal, High School, Saratoga Springs.
R. L. Maynard, Principal, Union School, Deposit.
H. F. Miner, Principal, Union School, Skaneateles.

John M. Moore, Principal, Union School and Academy, Parish.
 J. C. Norris, Principal, Academy, Canandaigua.
 George H. Ottaway, Principal, Union School, Canastota.
 E. R. Payson, Principal, High School, Binghamton.
 E. J. Peck, Principal, Free Academy, Owego.
 O. D. Robinson, Principal, High School, Albany.
 B. B. Seelye, Principal, Union School and Academy, Homer.
 B. W. Sherwood, Principal, Free Academy, Rome.
 Robert Simpson, Principal, Union School, Phoenix.
 C. T. R. Smith, Principal, Academy, Lansingburg.
 Warrington Somers, Ex-Principal, Instructor in Classics, High School, Auburn.
 M. L. Spooner, Principal, Union School, Canaseraga.
 O. W. Sturdevant, Principal, Academy, Onondaga Valley.
 A. N. Taylor, Principal, Union School, Sherman.
 W. P. Thompson, Principal, High School, Auburn.
 C. B. Van Wie, Principal, Union School, Holland Patent.
 Albert B. Watkins, Assistant Secretary of the Regents, Albany.
 A. White, Ex-Principal, Union School, Cazenovia.
 W. H. Whitney, Principal, Union School, East Henrietta.
 W. K. Wickes, Principal, High School, Watertown.
 T. C. Wilber, Principal, Union School, Sandy Creek.
 A. M. Wright, Principal, Union School, Waterville.
 T. K. Wright, Principal, Munro Collegiate Institute, Elbridge.

The following visitors registered their names and attended the Conference:

W. A. Baldwin, School Commissioner, 1st Dist. Oswego Co.
 Bertha M. Bannister, Teacher, Wyoming Seminary, Kingston, Pa.
 Mary E. Bannister, Teacher, High School, Syracuse.
 C. W. Bardeen, Editor of "The School Bulletin," Syracuse.
 H. E. Barrett, Principal, Salina School, Syracuse.
 T. H. Briggs, Hamburg.
 H. W. Childs, Publishers' Agent, Syracuse.
 B. G. Clapp, Principal, Union School, Fulton.
 J. Scott Clark, Professor, Syracuse University.
 Nathan Clark, Copenhagen.
 C. A. Cole, Principal, Amsterdam Academy.
 George F. Comfort, Professor, Syracuse University.
 J. T. Fisher, Professor, Syracuse University.
 W. Y. Foote, Principal, Union School, Marathon.
 Celia Ford, Teacher, High School, Syracuse.
 Nellie A. Ford, Instructor in Latin and Greek, Amsterdam Academy.
 Charles S. Fowler, Ithaca.
 H. H. Gadsby, Teacher of Greek, Free Academy, Owego.
 W. G. Hale, Professor, Cornell University, Ithaca.
 C. E. Hawkins, Inspector Regents' Office, Albany.
 Emma H. Kingsley, Teacher, High School, Syracuse.
 George B. Meleney, New York.
 A. W. Morehouse, Principal, Free School and Academy, Port Byron.
 Edward P. Nichols, Ex-Principal of Brooklyn Polytechnic Institute. Present
 address, Boston, Mass.
 George A. Plimpton, Publisher, New York.
 Lucy M. Salmon, Professor, Vassar College, Poughkeepsie.
 J. C. Schneider, Plattsburg.
 William H. Scott, Principal, Porter School, Syracuse.
 A. R. Serve, Teacher, Union School, Waterloo.
 Benjamin Shove, Clergyman, Syracuse.
 C. N. Sims, Chancellor, Syracuse University.

Charles R. Skinner, Deputy Superintendent of Public Instruction.
 W. C. Stone, Principal, Theresa.
 H. L. Taylor, Principal, Union School, Canandaigua.
 J. W. Taylor, Principal, Taylor School, Syracuse.
 J. B. Titus, Clifton Springs.
 Horatio S. White, Professor, Cornell University, Ithaca.
 C. B. Wilson, Instructor in German, Cornell University, Ithaca.
 John D. Wilson, Principal, Putnam School, Syracuse.

*APPORTIONMENT OF LITERATURE FUND BY THE
 REGENTS OF THE UNIVERSITY, JANUARY, 1888.*

We give below an alphabetical list of the schools receiving income from the Literature Fund January, 1888. In the right hand column will be found the amount received on advanced examinations, next the number of scholars in each school holding preliminary certificates, and before each school its numerical rank in the list. The amount received on each preliminary certificate has for several years been decreasing, as the amount appropriated was a fixed sum and the number of pupils in the State entitled to share in the division steadily increased. On account of the extra appropriation secured from the legislature the past session, however, the fund is this year more than doubled, and the amount received for each pupil is nearly \$5.67 instead of \$2.38 as last year. The whole amount divided is \$100,000, of which \$82,509 is distributed on the preliminary certificates, and \$17,491 on advanced certificates and diplomas. The manner in which this latter sum is apportioned is such that it is impossible to tell from the amount received in any school how many pupils in that school have obtained certificates or diplomas. The number of scholars in the State last year reported as having the preliminary certificate and being in attendance thirteen weeks or more was 14,558.

33. Adams Collegiate Institute.	103	\$ 128 00
54. Addison Union School, Academic Department.	70	192 00
54. Adelphi Academy.	70	—
129. Afton Union School, Academic Department.	38	28 00
188. Akron Union School, Academic Department.	22	—
144. Albany Academy.	34	—
2. Albany High School.	497	569 00
26. Albion Union School, Academic Department.	115	68 00
8. Alfred University.	184	28 00
128. Angola Union School, Academic Department.	39	60 00
146. Arcade Union School, Academic Department.	33	50 00
253. Argyle Academy.	5	—
105. Attica Union School, Academic Department.	46	76 00
249. Auburn Academic High School.	6	—
239. Ausable Forks Union School, Academic Department.	11	8 00
203. Avon Union School, Academic Department.	20	8 00
130. Bainbridge Union School, Academic Department.	36	26 00
54. Baldwinsville Free Academy.	70	138 00
19. Batavia Union School, Academic Department.	124	188 00
261. Bath-on-the-Hudson Union School, Academic Dep't.	1	—

11. Binghamton Central High School.....	168	\$ —
124. Boonville Union School, Academic Department	40	100 00
256. Brasher and Stockholm Union School, Academic Dep't.	4	—
167. Brookfield Union School, Academic Department.....	27	40 00
17. Brooklyn Collegiate and Polytechnic Institute.	129	—
4. Buffalo High School.....	462	750 00
213. Cambridge Union School, Academic Department.....	18	—
213. Camden Union School, Academic Department.....	18	—
139. Canajoharie Union School, Academic Department.....	35	112 00
62. Canandaigua Academy.....	66	110 00
183. Canaseraga Union School, Academic Department.....	23	22 00
156. Canastota Union School, Academic Department.....	30	80 00
209. Candor Free Academy.....	19	48 00
88. Canisteo Academy.....	54	94 00
124. Canton Union School, Academic Department.	40	4 00
153. Carthage Union School, Academic Department.....	31	—
216. Cary Collegiate Seminary.....	17	20 00
139. Castile Union School, Academic Department.....	35	102 00
153. Catskill Free Academy.....	31	22 00
27. Cazenovia Seminary.....	114	37 00
223. Central Square Union School, Academic Department..	16	—
54. Chamberlain Institute.....	70	12 00
139. Chateaugay Union School, Academic Department.....	35	68 00
108. Chatham Union School, Academic Department.....	44	74 00
213. Chester Union School, Academic Department.....	18	16 00
194. Cincinnati Academy.....	21	28 00
118. Claverack Academy and H. R. Institute... ..	74	139 00
229. Clinton Grammar School... ..	14	4 00
132. Clinton Liberal Institute.....	37	30 00
68. Clyde High School.....	60	92 00
91. Cobleskill Union School, Academic Department.....	52	40 00
183. Colgate Academy.....	23	—
91. Cook Academy.....	52	28 00
46. Cooperstown Union School, Academic Department....	78	181 00
50. Corning Free Academy.....	72	14 00
216. Cossackie Union School, Academic Department.....	17	—
188. Crown Point Union School, Academic Department ...	22	8 00
113. Cuba Union School, Academic Department.....	42	56 00
159. Dansville Union School, Academic Department.....	29	8 00
66. Delaware Academy.....	62	144 00
82. Delaware Literary Institute.....	56	62 00
132. Deposit Union School, Academic Department.....	37	12 00
188. De Ruyter Union School, Academic Department.....	22	8 00
188. Dryden Union School, Academic Department.....	22	8 00
60. Dundee Preparatory School.....	69	130 00
37. Dunkirk Union School, Academic Department	93	68 00
77. East Aurora Union School, Academic Department....	57	14 00
236. East Springfield Academy.....	12	4 00
68. Egbert's High School.....	60	106 00
253. Elizabethtown Union School, Academic Department..	5	—
194. Ellington Union School, Academic Department.....	21	26 00
6. Elmira Free Academy.....	210	112 00
260. Evans Academy.....	2	—
86. Fairfield Seminary.....	55	44 00
162. Fairport Union School, Academic Department.....	28	42 00
162. Fayetteville Union School, Academic Department....	28	22 00
77. Flushing High School.....	57	94 00
146. Forestville Free Academy.....	33	40 00
107. Fort Covington Free Academy.....	45	70 00

Apportionment of Literature Fund

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132.	Fort Edward Collegiate Institute.....	37	\$ 34 00
261.	Fort Edward Union School, Academic Department...	1	—
32.	Franklin Academy, Malone	108	347 00
139.	Franklin Academy and Union School, Prattsburgh....	35	78 00
36.	Fulton Union School, Academic Department.....	94	156 00
159.	Geddes Union School, Academic Department.....	29	—
194.	Genesee Valley Seminary and Union School.....	21	28 00
19.	Genesee Wesleyan Seminary.....	124	53 00
45.	Geneva Classical and Union School.....	80	96 00
216.	Gilbertsville Academy.....	17	22 00
50.	Glens Falls Academy.....	72	94 00
65.	Gloversville Union School, Academic Department....	63	—
124.	Gouverneur Wesleyan Seminary.....	40	72 00
118.	Gowanda Union School, Academic Department.....	41	38 00
132.	Greene Union School, Academic Department.....	37	66 00
113.	Greenwich Union School, Academic Department.....	42	47 00
41.	Griffith Institute and Union School.....	87	68 00
99.	Hamburgh Union School, Academic Department....	49	118 00
118.	Hancock Union School, Academic Department.....	41	112 00
167.	Hartwick Seminary.....	27	46 00
19.	Haverling Union School, Academic Department.....	124	244 00
172.	Herkimer Union School, Academic Department.....	26	54 00
118.	Holland Patent Union School, Academic Department.	41	56 00
253.	Holley Union School, Academic Department.....	5	—
91.	Homer Academy and Union School.....	52	78 00
62.	Hoosick Falls Union School, Academic Department...	66	4 00
34.	Hornell Free Academy.....	102	118 00
153.	Horseheads Union School, Academic Department....	31	4 00
162.	Houghton Seminary.....	28	34 00
223.	Hudson Academy.....	16	42 00
77.	Hudson High School, Academic Department.....	57	24 00
82.	Huntington Union School, Academic Department....	56	84 00
40.	Ilion Union School, Academic Department.....	88	160 00
264.	Ingham University.....	—	—
5.	Ithaca High School, Academic Department.....	240	434 00
136.	Ives Seminary.....	36	36 00
9.	Jamestown High School.....	180	277 00
41.	Johnstown Union School, Academic Department.....	87	176 00
129.	Jordan Free Academy.....	38	20 00
209.	Keeseville Union School, Academic Department....	19	—
229.	Kingsboro Union School, Academic Department.....	14	—
15.	Kingston Free Academy.....	138	245 00
108.	Lansingburgh Academy.....	44	32 00
139.	Lawrenceville Academy.....	35	16 00
175.	Leavenworth Institute and Union School.....	25	14 00
209.	Leonardsville Union School, Academic Department...	19	16 00
76.	Le Roy Academic Institute.....	41	54 00
216.	Limestone Union School, Academic Department.....	17	16 00
194.	Lisle Union School, Academic Department.....	21	—
54.	Little Falls Union School, Academic Department....	70	162 00
249.	Liverpool Union School, Academic Department.....	6	—
7.	Lockport Union School, Academic Department.	191	138 00
118.	Lowville Academy.....	41	128 00
50.	Lyons Union School, Academic Department.....	72	143 00
118.	Macedon Academy	41	84 00
236.	McGrawville Union School, Academic Department....	12	16 00
232.	Madison Union School, Academic Department.....	13	20 00
203.	Manlius Union School, Academic Department.....	20	12 00
203.	Marathon Union School, Academic Department.	20	56 00

88.	Marion Collegiate Institute.....	54	\$139 00
188.	Massena Union School, Academic Department.....	22	4 00
148.	Mayville Union School, Academic Department.....	32	12 00
180.	Mechanicville Academy.....	24	4 00
27.	Medina Free Academy.....	114	180 00
54.	Mexico Academy.....	70	176 00
167.	Middleburgh Union School, Academic Department...	27	42 00
180.	Middlebury Academy and Union School.....	24	10 00
175.	Montgomery Union School, Academic Department....	25	20 00
99.	Moravia Union School, Academic Department.....	49	101 00
156.	Morris Union School, Academic Department.....	30	108 00
183.	Mount Morris Union School, Academic Department...	23	34 00
103.	Munro Collegiate Institute.....	47	68 00
22.	Mynderse Academy, Seneca Falls.....	122	190 00
102.	Naples Union School, Academic Department.....	48	83 00
50.	Newark Union School and Academy.....	72	101 00
167.	New Berlin Union School, Academic Department....	27	28 00
113.	New Rochelle Union School, Academic Department...	42	—
232.	Niagara Falls Union School, Academic Department...	13	16 00
239.	Nichols Union School, Academic Department.....	11	8 00
250.	North Brookfield Union School, Academic Department	4	—
247.	North Tarrytown Union School, Academic Department	7	4 00
232.	North Tonawanda Union School, Academic Department	13	8 00
30.	Norwich Union School, Academic Department.....	111	8 00
180.	Norwood Union School, Academic Department.....	24	24 00
113.	Nunda Union School, Academic Department.....	42	4 00
12.	Ogdensburgh Free Academy.....	155	82 00
61.	Olean Union School, Academic Department.....	67	68 00
75.	Oneida Union School, Academic Department.....	58	72 00
77.	Oneonta Union School, Academic Department.....	57	164 00
129.	Onondaga Free Academy.....	38	14 00
27.	Oswego High School.....	114	—
242.	Ovid Union School, Academic Department.....	10	—
23.	Owego Free Academy.....	121	178 00
49.	Oxford Academy.....	73	140 00
223.	Painted Post Union School, Academic Department...	16	4 00
246.	Palatine Bridge Union School, Academic Department..	8	4 00
43.	Palmyra Classical Union School, Academic Department.	84	140 00
216.	Parish Union School, Academic Department.....	17	18 00
91.	Parker Union School, Academic Department.....	52	124 00
37.	Penn Van Academy.....	93	115 00
91.	Perry Union School, Academic Department.....	52	126 00
148.	Phelps Union and Classical School.....	32	43 00
105.	Phoenix Union School, Academic Department.....	46	72 00
68.	Pike Seminary.....	60	114 00
99.	Plattsburgh High School.....	49	81 00
194.	Pompey Academy.....	21	53 00
67.	Port Byron Free School and Academy.....	61	84 00
183.	Port Henry Union School, Academic Department.....	23	—
16.	Port Jervis Union School, Academic Department....	132	286 00
183.	Portville Union School, Academic Department.....	23	20 00
25.	Poughkeepsie High School.....	117	352 00
117.	Pulaski Academy.....	60	137 00
236.	Putnam Union School, Academic Department.....	12	14 00
203.	Red Creek Union Seminary.....	20	16 00
247.	Rhinebeck Union School, Academic Department....	7	4 00
250.	Rochester Female Academy.....	4	—
3.	Rochester Free Academy.....	474	38 00
249.	Rogersville Union Seminary.....	6	—

18. Rome (Free) Academy.....	127	\$209 00
172. Rushville Union School, Academic Department.....	26	—
103. St. Mary's Catholic Institute.....	47	100 00
86. Salamanca Union School, Academic Department.....	55	40 00
91. Sandy Creek Union School, Academic Department....	52	52 00
136. Sandy Hill Union School, Academic Department.....	36	112 00
31. Saratoga Springs Union School, Academic Department	109	118 00
203. Sauquoit Academy.....	20	—
23. Schenectady Union Classical Institute.....	121	—
156. Schenevus Union School, Academic Department.....	30	80 00
175. Schoharie Union School, Academic Department.....	25	46 00
162. Schuylerville Union School, Academic Department....	28	88 00
209. Seymour Smith Academy.....	19	44 00
188. Sherburne Union School, Academic Department.....	22	—
75. Sherman Academy, Moriah.....	58	—
167. Sherman Union School, Academic Department.....	27	36 00
242. Sidney Union School, Academic Department.....	10	—
194. Silver Creek Union School, Academic Department....	21	40 00
124. Sinclairville Union School, Academic Department....	40	70 00
73. Skaneateles Union School, Academic Department.....	59	102 00
246. Smithville Union School, Academic Department.. . .	8	—
73. Sodus Academy.....	59	52 00
144. Spencer Union School, Academic Department... . .	34	30 00
44. Stamford Seminary and Union School.....	82	162 00
82. Starkey Seminary.....	56	30 00
194. Staten Island Academy.....	21	24 00
249. Stillwater Union School, Academic Department.....	6	—
1. Syracuse High School.....	581	—
77. Ten Broeck Free Academy.....	57	197 00
229. Tonawanda Union School, Academic Department....	14	—
194. Troy Academy.....	21	10 00
172. Troy Female Seminary.....	26	—
10. Troy High School.....	172	110 00
175. Trumansburgh Union School, Academic Department..	25	8 00
68. Ulster Free Academy.....	60	148 00
162. Unadilla Academy.....	28	92 00
148. Union Academy of Belleville....	32	68 00
14. Utica Free Academy.....	149	464 00
239. Vernon Union School, Academic Department.....	11	4 00
34. Wallkill Free Academy.....	102	12 00
97. Walton Union School.....	50	86 00
194. Walworth Academy.....	21	41 00
97. Warsaw Union School.....	50	42 00
216. Warwick Institute.....	17	8 00
148. Washington Academy.....	32	32 00
227. Waterford Union School, Academic Department.. . .	15	—
113. Waterloo Union School, Academic Department.....	42	100 00
13. Watertown High School.....	151	—
47. Waterville Union School, Academic Department.....	76	159 00
108. Watkins Academic Union School.....	44	80 00
39. Waverly High School.....	89	276 00
82. Weedsport Union School, Academic Department....	56	180 00
148. Wellsville Union School, Academic Department.....	32	70 00
203. Westchester Union School No. 1, Acad. Department..	20	—
256. Westchester Union School No. 3, Acad. Department..	4	—
62. Westfield Academy and Union School.....	66	210 00
216. West Hebron Union School, Academic Department...	17	22 00
232. Westport Union School, Academic Department.....	13	12 00
111. West Winfield Union School, Academic Department..	43	64 00

111. Whitehall Union School, Academic Department.....	43	\$ 66 00
159. Whitney's Point Union School, Academic Department..	29	12 00
175. Wilson Academy.....	25	4 00
227. Wilson Union School, Academic Department.....	15	16 00
242. Windsor Union School, Academic Department.....	10	—
223. Woodhull Union School, Academic Department....	16	—
261. Yates Academy.....	1	—
88. Yates Union School, Academic Department.....	54	144 00
	14,558	\$17,491 00

INTERCHANGE.

Communications upon any educational topic may be addressed to G. R. CUTTING, LAKE FOREST, ILLINOIS.

THE STUDY OF LATIN IN PREPARATORY SCHOOLS.

ROXBURY LATIN SCHOOL, W. C. COLLAR, PRINCIPAL.

Boys are admitted to this school at eleven years of age and older, but no boy is admitted to the sixth, or lowest class, who is fourteen or over. In fact the average age at entrance is year by year almost exactly twelve years and six months. Latin is begun at once and is pursued throughout the course of six years. There are five recitation periods of fifty minutes each in Latin, the first four years, and four of the same the last two years. The aggregate of such periods in the whole course is 1064; and the per cent is 23.6 of the whole recitation time given to all subjects.

Next, as to books studied. The first year is spent on Collar and Daniell's *Beginner's Latin Book* to about page 190. In the second year *The Beginner's Latin Book* is finished, about one hundred anecdotes read in *Gradatim*, and some twenty or thirty pages read in *De Viris Illustribus*. The third year we read the lives of Miltiades, Themistocles, Aristides, Cimon, and Alcibiades, with a good part of four books of Cæsar's *Gallie War*. The fourth year is given to Ovid, *Anecdotes from Cicero*, edited by Walford, and one book of the *Æneid*. Of Ovid about a thousand lines are read, and perhaps twenty or thirty of the *Anecdotes from Cicero*. In the fifth year *Ver-gil* is carried on for one term, and the amount read is about two

books; then one term is given to Cæsar's *Civil War*, about twenty-five pages, and one term to Cicero's Letters. In the last year, the reading is wholly in Cicero's *Select Orations*. We read the orations against Catiline, The Manilian Law, and the *Pro Roscio Amerino*. The writing of Latin occupies a very important place. Of course a considerable part of the time the first year goes to exercises in translating from English into Latin. Then for two years (except during one term, while the class is reading Ovid) Latin Composition occupies two-fifths of the time, and reading three-fifths. At the end of the fourth year of the course, Latin Composition is discontinued at present; but this is likely to be changed.

I should remark that nearly all the boys who go to college from this school go to Harvard, and that they usually enter examinations in the "Advanced Subjects," numbered 1 and 2 in the Harvard catalogue.

It remains for me to indicate in a general way the objects aimed at and the method. It will be understood that our purpose is not merely to fit boys for Harvard College. It includes that, to be sure, but it is more than that. The thing then is to give a boy the best training and the best and the most knowledge of the Latin language practicable in 1064 hours. First, he must be trained humanely but most thoroughly in a practical mastery of the system of inflections in Latin. This he gets to a great degree the first year without suffering, and, I think I may say, with relish, and very often with positive pleasure. He also gets, of course, a great deal more. He gets a pretty large and serviceable vocabulary, and a familiarity with most of the common principles of syntax, not including, however, many of the uses of the subjunctive. Henceforth, the acquisition of a larger vocabulary, to be got by constant observation in reading, and particularly by an unceasing comparison of passage with passage, where the same, or kindred, or contrasted words occur, the power to turn English into Latin, the power to see the meaning of a sentence in Latin, and the power to translate into correct, and if possible, into forcible and felicitous English, constitute the aim and the work.

I will add two observations. The burden of instruction in syntax is thrown almost wholly upon the lessons in writing Latin, and in these exercises, no manual is used. The English to be turned into Latin consists of two classes of exercises, one of short sentences to be rendered into Latin orally, the other of continuous English to

be translated on paper, to be handed up and corrected by the teacher. Both are based upon a bit of Latin that has been read and explained in the class, and assigned for further study, which practically amounts to committing the passage to memory.

A great deal of time is devoted to reading at sight, generally some time being taken for that in connection with every advance lesson in translation.

If the examinations in the classics at Harvard are to be materially changed in character, as is indicated by the papers set last June, it is quite likely that the method which I have outlined above, as pursued in this school will have to undergo a somewhat radical change. That examination seemed to call for the old style of grammatical drill which I, for one, hoped was moribund, together with a mode of study that ought to issue in a manifest increase of mental power, and in a useful knowledge of the Latin tongue. To insist on both is virtually to throw an additional year's work upon the preparatory schools, or hopelessly distract them. W. C. COLLAR.

BOSTON LATIN SCHOOL, MOSES MERRILL, PRINCIPAL.

Except for a very brief period the course of study in the Boston Latin School has always been based upon the requirements for admission to Harvard College. When the Harvard Faculty introduced into its requirements for admission unprepared translation of certain Latin and Greek authors, the Latin School at once modified its method of instruction and strove to prepare its pupils for the required tests. The old plan of learning paradigms and committing rules of syntax to memory before translating was superseded by the present plan, by which a few principles and paradigms are first learned, and then the translation of Latin into English and *vice versa* is begun, and the learning of principles and paradigms continued, till all the important ones are known and understood. From the outset, translation at sight is an important feature of the course. The grammar as a text book is not set aside during any part of the course. The method of instruction in Greek is substantially the same. Selections in Latin are read from Cæsar, Ovid, Vergil, Sallust, Cicero; in Greek, from Xenophon, Herodotus, Homer. In both Latin and Greek pains are taken to have the pupils acquire as extensive a vocabulary as possible.

GEORGE W. ROLLINS.

PHILLIPS EXETER ACADEMY, W. Q. SCOTT, PRINCIPAL.

LATIN COURSE—PREPARATORY CLASS.

FIRST TERM.

Allen & Greenough's Grammar. Collar & Daniell's Beginner's Latin Book. Pennell's Latin Subjunctive.

SECOND TERM.

Latin Lessons and Grammar. Viri Romæ. Caesar's Gallic War, Books II, III. Exercises in Writing Latin.

THIRD TERM.

Cæsar's Gallic War, Books I, IV. Sallust's Catiline and Jugurtha. Composition.

JUNIOR CLASS.

FIRST TERM.

Virgil's *Æneid*, Books I., II. Jones's Latin Prose Composition. Exercises in Writing Latin at Sight.

SECOND TERM.

Virgil's *Æneid*, Books III, IV. Jones's Composition.

THIRD TERM.

Virgil's *Æneid*, Books V, VI. Jones's Composition. Reviews.

MIDDLE CLASS.

FIRST TERM.

Virgil's *Eclogues*. Ovid's *Metamorphoses*, Selections. Latin at sight. Jones's Latin Composition. Writing Latin, continued throughout the year.

SECOND TERM.

Cæsar's Civil War at sight. Jones's Latin Composition, continued. Composition at sight.

THIRD TERM.

Reviews. Latin at sight. Composition.

SENIOR CLASS.

FIRST TERM.

Cicero, seven orations. Exercises in writing Latin.

SECOND TERM.

Virgil's *Æneid*, Books VII, VIII, IX. Cicero at sight. Exercises in writing Latin.

THIRD TERM.

Cicero and Virgil at sight. Exercises in writing Latin.

There is little to add to the above schedule. Students are "still drilled"—and severely drilled—"in Latin grammar, parsing, syntax, etc.," but they are also taught to read Latin at sight. Extempore reading is begun early in the course, though more is made of it later. The writing of easy Latin at sight is also insisted on. Mere

quick-wittedness is not accepted in place of solid grammatical knowledge; nor, on the other hand, does fluency in reciting rules and paradigms count for much, if the pupil cannot apply his grammar to good purpose in reading and writing. No collision of systems is felt in the course.

GEORGE LYMAN KITTREDGE.

PHILLIPS ACADEMY, ANDOVER, MASS., C. F. P. BANCROFT, PRINCIPAL.

The Latin in Philips Andover Academy is distributed through four years. The exercises, full hours, in the first year, are not less than six nor more than ten a week, in the second year five, in the third five, in the fourth six. Roman History is included in the Latin time. The first year is given to Comstock's Latin Lessons, and to Cæsar (B. G.) Book I. Chap. 1-13, Books II., III., IV. In the second year: Cæsar, I., V., VI.; Sallust's Catiline; Cicero, Manilian Law; Vergil, *Æneid* I; Jones's Composition to Ex. xxi; Roman History and Geography. The third year: Vergil, *Æneid* II-VI, Eclogues; Jones's Composition completed; History and Geography completed. Fourth year: Cicero's Orations, six; Vergil, *Æneid* VII; Ovid, 3,000 lines; Cicero, *De Senectute*; Livy, XXII; Horace, Odes; History reviewed; writing Latin twice a week; Wilkins's Antiquities.

The programme does not show the amount or frequency of sight work, retranslation, written translation, exercises in prosody, etc. Nor does it indicate in the last year the work done by every pupil. Nor does it indicate the work of other years than the year '87-88. There is a special course in Latin, not shown above, for candidates preparing for the Sheffield Scientific School of Yale University.

The school finds it difficult at some points to maintain its character as a fitting school for college, and all the colleges. It is not difficult to meet the specific requirements of any college as regards either their amount, or the character of the examination. The diversity of specific requirement is distracting to the teachers and often a source of apprehension to the pupil. The relief is to be found in making the entrance requirement one in the ability of the pupil to read, write and comment upon passages of Latin; or in entrance upon the school certificate; or perhaps best of all by a general agreement of the colleges as to what shall be the amount and character of the requirement in Latin. In either case we could continue to fit our large classes of men destined for numerous institutions without too much confusion and strain.

C. F. P. BANCROFT.

WILLISTON SEMINARY, EASTHAMPTON, MASS., WM. GALLAGHER,
PRINCIPAL.

LATIN COURSE.

JUNIOR YEAR.

Collar & Daniell, *Beginner's Latin Book*, in full. Cæsar. *Gallic War*, Book I. (*Helvetian War*), Book II.

JUNIOR MIDDLE YEAR.

Cæsar, Book I, (*War with Ariovistus*), Books III. and IV. Sallust, *Catilina*, Virgil, *Æneid*, Book I. Bennett's *First Latin Writer*, Exercises 1-100. Sight Reading. Cæsar, Book V.

MIDDLE CLASS.

Virgil, *Æneid*, Books II-VI, inclusive. *Eclogues*, Ovid, 2,500 lines. Bennett, Exercises 101-225. Sight Reading, Cæsar, Book VI., Sallust, *Jugurtha*.

SENIOR CLASS.

Cicero, *Orations against Catiline*, I., II., III., IV., *Orations for Archias* and the *Manilian Law*. Bennett, Exercises 225-270, Sight Reading, Tomlinson's *Latin for Sight Reading*, 60 pages. Cæsar, *Civil War*, Book III.

The schedule represents *actual work* except in the case of some of the sight reading, which is changed from year to year, as it ought to be rather flexible.

WM. GALLAGHER.

ADELPHI ACADEMY, BROOKLYN, N. Y., ALBERT C. PERKINS, PRINCIPAL.

The aim in our classical course of study is to prepare boys and girls to enter the colleges whose requirements for admission are most advanced, and to do well the work that will be set for them after they are admitted. Still pupils here are not confined in a mechanical way to the bare preparation for an examination. They are taught how to study and helped in forming good habits of work and investigation. Latin and Greek are studied for the sake of the language and the History, Biography, Poetry, Mythology of the Ancient Classics. Philology with us is an important feature, but it is not the main thing. Early in the course we make use of Gates's *Word Building*, and throughout devote attention to the derivation of words and the transitions in meaning; but with all this the power to read Latin and Greek with intelligence is kept constantly in view. Homer and Vergil read properly give the pupil an increased interest in Milton and Shakespeare, just as Cicero will kindle a zest for Burke or Webster. For the last two years two hours a week are given to Greek

Composition and two to Latin Composition. The writing of Latin and Greek sentences is practiced throughout the course.

We do not attempt to escape the attention and careful drill needed to make pupils familiar with the Latin and Greek Declensions and Conjugations. A readiness in giving the exact form at once, is secured early and is of great service ever after.

ALBERT C. PERKINS.

POLYTECHNIC INSTITUTE, BROOKLYN, N. Y., D. H. COCHRAN,
PRESIDENT.

COURSE OF STUDY.

Latin Grammar, Latin Reader, Cæsar (four books), Virgil's *Æneid* (six books), Sallust's *Catiline*, Cicero's *Select Orations* (ten), and Latin Prose Composition. Classical Geography, History, and Mythology.

In our preparatory department we still keep up the drill in grammar, syntax, &c., but after we commence Cæsar, about one-fifth of the time in reading is given to reading at sight.

Selected passages more especially from Virgil and Homer are committed to memory.

D. H. COCHRAN.

COLGATE ACADEMY, HAMILTON, N. Y., JAMES W. FORD, PRINCIPAL.

Our course in Latin covers three years. The first two terms of the first year are devoted to the Latin Lessons, the aim being a practical knowledge of the principles of etymology and of the more common principles of syntax. Continued and repeated drill is given in turning short sentences from Latin into English and *vice versa*. Frequent exercises are given in answering in Latin questions asked in Latin. Short and easy Latin stories are given both as exercises in translation to be prepared and as exercises for sight reading.

The third term of the year is spent upon Cæsar and from twenty to thirty chapters are read. Accompanying the reading is a daily exercise in translating into Latin short English sentences based upon the text. Either the review is translated at hearing or a translation of the review is turned into Latin at hearing. Drill is given this term upon the simpler principles of Indirect Discourse. There are frequent exercises in sight reading.

The first term of the second year is also devoted to Cæsar. This year forty pages were read. There are daily exercises in Latin Prose, as in the last term of the first year, and frequent exercises in sight reading.

The first few weeks of the second term of this year are given to Latin Prose Composition, the work being based on the text of the first book of the Gallic War. The remainder of the second year is devoted to Cicero, three or four orations being translated. There are frequent exercises in composition, translation at sight and hearing, changing from direct to indirect discourse and *vice versa*. Stress is laid upon acquiring the ability to pronounce the Latin not only with correct sound and accent but also so as to express the meaning of the passage.

The first term of the third year is devoted to Cicero. This year the fourth Oration against Catiline, the Oration for the Poet Archias and the Oration for the Manilian Law were read. Special attention is given to the Composition and derivation of words with grammar lessons for two weeks upon this subject. Latin synonyms are discussed with lessons for four or five weeks from "Shumway's Latin Synonyms."

During the second term of this year one and a half books of the *Æneid* are read with grammar lessons upon Prosody and daily lessons in scanning. During the third term four and a half books of the *Æneid* are read besides occasional sight reading. In the work upon the *Æneid* special attention is given to the composition and derivation of words, the use of synonyms and the use of Rhetorical figures.

During the nine terms of the three years the class has five hours of recitation each week, in Latin, with final written examinations and occasional written examinations during term.

During the second term of the first year, besides the recitation in Latin, there are five hours of recitation each week in Roman History. A lesson is assigned which requires one and a half or two hours for preparation and forty or forty-five minutes for recitation. The remainder of the recitation hour is filled up with talks upon the subject by the teacher or reading from history or fiction bearing upon the lesson.

During the last year students are required to have and use a Classical Atlas, a Classical Dictionary and a Dictionary of Antiquities, and to be ready upon all Geographical, Historical and Mythological references occurring in the text read.

JAMES W. FORD.

COMMUNICATIONS.

HOW SHALL LATIN BE TAUGHT?

To the Editor of THE ACADEMY :

Latin should be made *interesting* even from the early stages of study. The committing of long vocabularies, the hard work in the paradigms, the initial work in the "Lessons" and short detached sentences should be reduced to a minimum. The "exceptions," "the fine print," "the classification of stems," the needless work with the moods and tenses of the verb—why the Latin teachers in our preparatory schools who introduce these subjects in undue proportions within the first two or three terms of the Latin course, are blindly doing all they can to banish classics from our curricula.

Why will not our Latin teachers *postpone every possible* difficulty of inflection and syntax till the latest hour of need, instead of discouraging their average pupils with matter apparently—for nearly a year—irrelevant? How many of these teachers go over their Latin Grammars three or four times during the school course with the purpose of completing a *system* of grammar study? It is rather to be feared that some teachers take such a *wide* swath the first time through their grammar, that the poor boys who *survive* have no further need of grammar study.

I believe that far more grammar should be learned from the living dead co-ordinated sentences of connected discourse, and less from the "sections" and "sentences" of the manuals. How can boy loving teachers hug "Jones" and "Leighton" so long and so desperately! Compare the gladness and triumph of the lad who learns his grammar from the Latin author in a Latin Classic with the misery and hate of the one who learns his Latin Classic from Allen & Greenough plus Jones or some other "First Year Book!"

I sincerely favor a vast increase in the amount, the quality and methods of sight reading in the preparatory course, yet in no sense that implies any less thoroughness in the mastery of the essentials of grammar. *Interest, interest, interest*, from the first to the last day of Latin study is what I plead for. Why, in the name of the second

great literature of the world's culture, is Latin made to such a degree—a senseless “grind”?

All this may seem to the readers and editors of THE ACADEMY a rhapsodical anacrusis to what might be a helpful article, but, Mr. Editor, and “Gentle Reader,” call up the boys (and the boys, God bless them! surely have some rights), call up the distracted fathers and mothers, and ask them to read between my lines—and you will have something to think about.

“A JOAK,” OR “NOT A JOAK”?

To the Editor of THE ACADEMY:

Some things in THE ACADEMY are so good as to bear reprint in THE ACADEMY itself, with perchance a little sprinkling of italics of one's own. When, in your late interesting excerpt on “Franklin's Idea of an Academy,” I read the following words, I wondered whether the great philosopher was really in earnest, foreseeing, prophet-like, the actual course of later controversy, or whether it was not all a grim joke—a sly satire on those who insisted, against his judgment, that the classics “should be put in.” Artemus Ward used to interpret sometimes his own serio-comic utterances by the phrases, “a joak,” or “not a joak.” I confess I feel the lack of some such guidance here, where the dividing line seems to be a very narrow fence. But I will quote, and let your readers decide on which side of the fence they will get down:

“To make them (the boys) eager to learn Latin and Greek, they were to be told that Latin and Greek *were the most expressive, the most copious, the most beautiful, of languages; that the finest writings, the most perfect productions of wit and wisdom, were in Latin and Greek; that to render them in English was impossible; that these languages contained all science; that Latin was the language of the learned in all lands, and that to understand it was a distinguishing ornament.*” How many boys have been and are still told these very things! and how many have had to realize that it was all—for them at least—only a joke—or worse! If Franklin had really believed these things, how could he have objected to the admission of Latin and Greek into his academy?

But further, and more seriously, is it not interesting to see how Franklin's enthusiasm about *eagerness* contains the germ of one of the most fruitful ideas of modern education? "The great principle that underlay his plan," that "nothing should be taught till the scholar was impatient to learn it," is, only in exaggerated terms, the prophecy of the present *elective system*—the free choice of studies, guided by intelligent desire (*eagerness*) to learn. This system—the great educational solvent of the present and of the future—would have settled the question between Franklin and his opponents, where and how far the classics "should be put in." Of this conception, as now developed and applied, Franklin knew nothing; but here, as elsewhere, he both thought and builded "better than he knew."

EDWARD S. JOYNES.

SOUTH CAROLINA COLLEGE.

To the Editor of THE ACADEMY:

DEAR SIR:—My attention is called to your notice in the January number of *THE ACADEMY* of Prof. Baldwin's "Psychology." The quotations are perfectly fair, although I (and others whom I have consulted) believe that there is nothing inconsistent in them, each statement being true in the sense explained on the page from which it is taken, and each agreeing with the others, or at least not contradicting them. If quotations had been made of the objectionable passages alluded to in the book (referring to pp. 209 and 213) the notice would have been perfectly fair in every respect, because each reader could judge for himself of the justice of the caution put forward at the close of your notice. But a mysterious and threatening silence is preserved as to the exact nature of the sentences which are opined to be too indelicate to place in the hands of school girls and boys. This adds force rhetorically to the warning against using this book! Had the passages been quoted they would have occasioned a smile at the alarm which the critic manifests. The effect of the notice is to libel the book as unfit for use in schools.

The suggestion is made at the opening of the article that I, the editor, for some reason avoid speaking of the book. It is a book on which I expended much time, reading two proofs of it with great care, and suggesting many omissions and insertions, and it is a book which I confidently commend for use in schools of all kinds where pupils are sufficiently advanced to begin the study. I think that

Professor Baldwin has succeeded in making the most elementary and, I add, the best of all elementary text-books on psychology.

The caution in my preface was due to the necessity I found to disabuse the reader who approached the work expecting a new contribution to the science of psychology rather than an excellent text-book on the subject.

I took pains also to define the limits of the work, lest some one might hastily suppose that a book which was written down to the level of the first years of reflection should also aspire to fill the place of a text-book for Colleges and Universities. The same book will not do for High School pupils at 17 years of age and for the senior class in college averaging 21 years. I ask, sir, that you will print this letter, and also print the indelicate passages hinted at in your book notice.

Respectfully yours,

W. T. HARRIS.

CONCORD, MASS., JANUARY 17, 1888.

We have read the review mentioned by Mr. Harris and fail to find the word "indelicate." The book was sent for review to a person whom we believed entirely competent, and whom we knew to be friendly to both publisher and editor. No copy of it is at hand from which to reprint the passages referred to. The pages are given in the review, however, and any reader can satisfy himself as to the justness of the reviewer's criticism. [Editor of THE ACADEMY.]

To the Editor of THE ACADEMY:

In Gen. Walker's article in THE ACADEMY for January, 1888, I find the following statement of the first object to be sought in teaching arithmetic to public school children: "First, foremost, and absolutely indispensable is the acquisition of the ability to perform simple numerical operations with reasonable rapidity and with *almost infallible* accuracy." Further on in the article he says: "In a store, or shop, or factory, or on a railroad, a lad who cannot set down figures and add them *rightly, every time*, must take and keep an inferior position."

(The italics in both quotations are mine.)

I heartily agree with the writer that the accuracy at present attained by the graduates of grammar schools is not what it should be. It necessarily follows that I believe a higher degree of accuracy abso-

lutely essential. I cannot agree with the writer of the article in question as to the degree of accuracy to be required.

I have never yet seen a successful business man or a first-class book-keeper who claimed to be *almost infallibly* accurate in simple mathematical work, although every one of them has had far more training than any grammar school pupil ever receives. Within a short time I have had occasion to observe carefully a large number of the mathematical operations of three men well known as extremely accurate in their work. One of these men is a teacher of great ability and a mathematician of note; the other two are engaged in business pursuits. The percentage of errors in all these cases was far too large for me to class any one of them as *almost infallibly* accurate. Indeed I have heard each of them assert repeatedly that mistakes were unavoidable and to be expected in every man's work. I might cite other similar cases, but none where the errors made would, in general, be fewer than in the work of the persons referred to above.

If we find then that *men* after years of training must still be classed as *fallible*, why should we ask of *grammar school pupils infallibility* in simple numerical operations? The Boston teachers have my sincere sympathy if they attempt to carry into effect the advice of Gen. Walker in this particular, for I feel certain that instead of most pupils readily attaining the accuracy sought, only here and there an exceptional few will approximately attain it.

WILL C. INGALLS.

PROVIDENCE, R. I., HIGH SCHOOL, JANUARY 12, 1888.

Editor of THE ACADEMY:

Doubtless many teachers of geology have found, as I have, that through fossil hunting their pupils have become very much interested in the subject and have thus been led to do more thorough work than they otherwise would have done, often going far beyond the limits set by the text-books. They have also found, without doubt, that certain fossils and minerals are very abundant in their vicinity, and that a collection of these common fossils can be made in a few hours.

It seems to me that with these conditions a state exchange would accomplish a good work. Suppose that THE ACADEMY offers to publish the names and addresses of teachers whose geology classes will make exchange collections. When the list is published we who

have abundance of Clinton and Niagara fossils can write to our friends in the Chemung and the Potsdam districts, offering to exchange with them, then the teacher receiving the letter can appoint certain members of the geology class to make the collection to be sent us. In this way each high school in the State can obtain a collection of the characteristic fossils, and the teachers will find the work done by the scholars of positive value as an educational measure. In sending specimens from any locality preference should be given to those figured in the text-books.

Of course the present snow prevents active operations, but it will soon be gone and then, if you think the idea worth while, I hope you will give it space.

ALBERT L. AREY.

INSTRUCTOR IN GEOLOGY,
ROCHESTER FREE ACADEMY.

[The idea seems to us an excellent one, and we gladly give to it whatever space is necessary. We will, however, extend Mr. Arey's idea and propose a National rather than a State exchange. We also suggest that teachers of Botany can help one another in a similar way and we will offer THE ACADEMY as a medium. Our subscribers are found in every part of the United States, and we shall be glad to receive the names and addresses of any teachers who wish to avail themselves of the scheme proposed. Next month we will publish a brief article giving, somewhat in detail, suggestions for drying and preserving specimens, as well as for packing them for sending by mail or express.—Editor of THE ACADEMY.]

NOTES.

THE ACADEMY is mailed promptly on the first of the month. Subscribers should inform us if it is not received within two days of the time when it ordinarily reaches them.

In the January *Forum* Rev. M. J. Savage discusses the question "What Shall the Public Schools Teach?" It is one of the hopeful signs of the times that a magazine of the standing of the *Forum* thinks it worth while to devote a part of its space to this discussion.

We cannot agree entirely with the views set forth by Mr. Savage in this article. Three things, it seems to him, "constitute the great essentials. The first in order of time, and also of importance, since it is the condition of all the rest, is that each child should be trained into fitness for honest self-support." Farther on he says: "To this end industrial training must be made an integral part of our common school system." The radical mistake of all who argue in this way for industrial training becomes apparent when one examines the last census and sees what a very small part of our population is devoted to pursuits embraced in the scheme of industrial training. Mr. Savage in this same article objects to the teaching of what will be of use to only one in a hundred of the pupils. Yet the very thing he argues for will serve probably little more than two in a hundred to get a living. Moreover, he urges that lawyers should not be trained at public expense. Why then should carpenters? This same argument logically carried out will either push into our schools preparation for every conceivable method of getting a living, or it will crowd out every one of them. If my neighbor has a right to have his child taught carpentering or cabinet making in the public schools in order that he may earn his living, I have a right to have my child taught diamond cutting or glass blowing for the same reason. The simple way out of the difficulty is to fall back on what might seem to be an axiom, namely, that it is the business of the public to provide for the support of the school, and not the business of the school to provide for the support of the public, either present or future.

To Mr. Savage's second essential, that "since in our republic every man is an active part of the governing power, he should be trained into an ability to use this power intelligently," we heartily subscribe. We do not think he goes too far when he says: "Either the ballot should be taken from the hands of ignorance, or else immediate measures should be taken for compulsory, universal education." His third essential likewise seems self-evident: "He should be so educated morally that if he afterwards chooses to do wrong, it may be apparent that he does it with his eyes open, and not through ignorance."

To us it seems possible to remand the whole of Mr. Savage's first essential to his third. Teach every child that it is morally wrong not to earn one's own living, and leave the means of so doing to his own efforts. We are speaking now of our own country. In Europe the writer has repeatedly seen men and women who were anxious to

earn a living and unable to do so. In this country no such cases have ever come under his notice. It is easy to find those who do not find the work they want, but it is hard to find those who can find no work by which they can live. There are plenty of wealthy men in this country who began life with no trade, and without money or friends. Educate the child to the duty of self support, and there will be little occasion to suggest the means.

One hears in all these arguments for industrial training a good deal of sneering at "practically incapable men, useless members of society, educated, because they happened to have a parrot-like knowledge of Greek or French drilled into them." We had the good fortune twenty-odd years ago in college to know with more or less intimacy three or four hundred undergraduates who had had some "knowledge of Greek or French drilled into them." No one of them, so far as we know, has failed to earn his living when called upon. Those who are living are scattered over the whole world, preaching, teaching, healing, working in many different ways. They have not all thought material advancement the most important thing in life, and it may be some have paid too little attention to what is usually called the practical side of life. Many have thought the art of living was a nobler thing than the art of getting a living, and have devoted most thought to what they considered the most important thing. They have their reward, though they receive little credit from those who despise them because they are impractical.

Since graduation, too, our life has much of it been spent among college-bred men. The fact that all the world is ready to make note of it, if an educated man fails to get on, speaks volumes for the rarity of its occurrence. In the ordinary walks of life failure is too common to call for much comment.

The following petition has been forwarded to the Regents of the University:

Hon. David Murray, Secretary of the Regents of the University:

DEAR SIR:—On behalf of the Trustees and Teachers of Macedon Academy, and reflecting perhaps the views of others throughout the State, the following petition is respectfully presented to the Board of Regents:

1. To extend the time for Arithmetic, Algebra and Trigonometry to three hours; believing that the reasons for such a change are as strong as those which led to the extension for Plane Geometry.
2. To prepare for the Academies an examination adapted to a fair knowledge of the Latin Grammar and Reader. To even a purely English education such as the

Regents propose for the Academic Diploma, it seems desirable to add some knowledge of Latin, on account of its necessity to a proper understanding of English words and its use in the nomenclature of the sciences. That amount of Latin is required in addition to the Regents' Academic Diploma for those who constitute the graduating class of Macedon Academy and receive its Diploma. It does not seem to be an unreasonable requirement.

3. To place Civil Government in the intermediate list and assign "Latin Grammar and Reader" to the place Civil Government now occupies in the first group of the higher course. This would increase the number of studies in the intermediate list to six, and would slightly advance the standard for the whole course; but it is believed that this would be a gain to the Regents' system and not a loss; because with the wide option allowed the first group is now easily passed with no very high grade of scholarship.

4. To arrange the three Regents' examinations one week later in each case. It is quite difficult to begin the fall term earlier than September 1st. The pleasures and recreations of the summer are now generally extended to the close of August.

A course of *twelve weeks* prior to the Regents' week is desirable in almost every class. *Eleven weeks* or *ten* can scarcely produce the best results. The February examinations can be one week later because many schools make the winter term fourteen weeks, and in the country at least the students can attend later in March.

The second Monday in June is often too early in the month, to close the term on Friday of the same week.

Hence, assuming that the school year is to consist of thirty-nine or forty weeks, and that each term is to close with the Regents' examination, it appears that a calendar could be arranged much more satisfactorily if each examination were arranged one week later.

(Signed) LEWIS H. CLARK,
Principal of Macedon Academy.

The following item, clipped from the *Yale Daily News* of January 18th, may be of interest to some of our readers:

At the meeting of the Phi Beta Society, Friday evening last, the men of '89 who received a philosophical or high oration appointment were elected to membership, and they will be initiated one week from to-night. The men, with the schools at which they prepared, are as follows: William P. Aiken, Norwich Free Academy; John W. Banks, Guilford Institute; Lester Bradner, Hopkins Grammar School; Geo. Coggill, Everson's School, New York; Joseph R. Ensign, Hartford High School; Chas. F. Kent, Palmyra Classical Union School; William A. McQuaid, Hillhouse High School; William H. Page, Chickering Institute, Cincinnati; Harry L. Reed, Williston Seminary; Oliver H. Richardson, New Britain High School; Ferdinand Schwill, Woodward High School, Cincinnati; Edmund D. Scott, Hillhouse High School; Herbert A. Smith, Exeter; Horace F. Walker, Detroit High School; Andrew L. Winters, Reading High School; George W. Woodruff, prepared privately; Horace Wylie, private tutor. It is a noticeable fact that but two of the men come from the prominent preparatory schools; one from Williston and one from Exeter.

BOOKS RECEIVED.

The American Journal of Psychology. Edited by G. Stanley Hall, Professor of Psychology and Pedagogics in the Johns Hopkins University. Vol. I., No. I. Baltimore, November, 1887. (Issued quarterly.) N. Murray, Publisher.

Few persons outside the narrow circle of psychological and neurological specialists are aware what progress has been made of late years in the study of mental facts and laws. The older method of introspection, the method of looking within one's mind and recording what one sees there, has been supplemented by a new experimental method, which makes up for its indirectness by being more exact; and psychology is now studied in the light of physiology, pathology and psychiatry.

The older writers did not forget that the mind is invariably accompanied by a body, for they devised theories of the interaction of the two, and hazarded guesses as to the seat of the soul; but the full scope and import of the union of body and mind escaped them. The later psychology tries to do more justice to this momentous fact. It takes the position that mental events and nervous events form two parallel chains, in such a way that every act of mind is accompanied by an event in the brain. These two chains run side by side without ever interfering. The chain of mental events appears to be interrupted at times, as during deep sleep or other unconsciousness. The chain of physical events is continuous, and there is never a point in it at which nervous events cease and mental events begin, as appears to be the case in every perception; nor a point later on at which mental events cease and nervous events begin, as appears to be the case in every act of will. Such a gap in the physical chain would contradict the law of the conservation of energy. The assumption, on the other hand, of a continuous physical chain furnishes an easy explanation of the familiar facts of cerebral congestion during mental labor and cerebral exhaustion at its close.

This theory of concomitance is the working-hypothesis of psychophysics. It forms the point of departure for inquiries into the functions of the different brain-centres; for psychical measurements, i. e., experiments regarding the times taken up by various mental acts, such as sensation, discrimination, judgment, etc.; and for investiga-

tions as to the law that governs the proportion between changes of external stimulus and changes of resulting sensation.

Much light has also been thrown upon psychology by the study of nervous diseases and of insanity, as well as by many facts recently learned about hypnotism, double consciousness, and other abnormal mental states.

The new *Journal of Psychology* aims to cover this entire department. It will differ from *Mind* and the *Journal of Speculative Philosophy* in excluding matter of a speculative as distinguished from an experimental character, and will thus be in English what Prof. Wundt's *Philosophische Studien* is in German.

The first number leads off with an article by Dr. W. P. Lombard on "Normal Knee-Jerk," describing a series of experiments, the result of which is to prove that the length of the jerk imparted to the foot, when the *ligamentum patellae* is suddenly struck, varies surprisingly and forms an exceedingly delicate test of the vigor and health of the nervous system. Next follows a paper by Prof. Stanley Hall and Mr. Yuzero Motora on "Dermal Sensitiveness to Gradual Pressure-Changes," detailing experiments made in the psycho-physical laboratory at Baltimore in regard to the amount a pressure-stimulus must be increased or diminished in order that the resulting sensation may be distinguished as greater or less. The third paper, by Mrs. Christine Ladd-Franklin, describes a new "Method for the Experimental Determination of the Horopter," or curve in the field of vision, every point of which produces corresponding images on the two retinae. The last contribution, by Dr. Joseph Jastrow, on "Star Magnitudes," is a comparison of star-classifications made by the eye with those made by the photometer, i. e., of classifications made by comparing sensations with reference to their intensity, with classifications made by measuring the different stimuli that cause the sensations. There follow reviews of publications by the English Society for Psychical Research and of recent works on psychology; and the *Journal* closes with a number of pages of valuable notes from the fields of physiology, neurology, psychiatry, etc.

Evidently the new *Journal* will be too technical in character to interest most teachers in secondary schools. It aims to publish the processes rather than the results of psychological investigation, and can therefore be of little immediate service to the student of pedagogy. The ultimate effect, however, of such researches as those described in the present number must be to prepare the way for a

scientific pedagogy. For pedagogy is dependent upon physiological psychology; the only safe educational methods are those that take account of the intimate relation between the mind and the nervous organism, between intellectual and physical development. From this point of view the appearance of an American Journal of Psychology, under the auspices of so progressive an institution as the Johns Hopkins University, and in charge of so competent a psychologist as Prof. Stanley Hall, is a very cheering sign of the times.

The Practical Elements of Rhetoric, with illustrative examples. By John F. Genung, Ph. D., (Leipsic) Professor of Rhetoric in Amherst College. Boston: Ginn & Company, Publishers. 1887.

The monograph on "The Study of Rhetoric," by Professor Genung of Amherst College, prepared the way for a favorable reception of his "Practical Elements of Rhetoric." The monograph says: "The beginning of the study is concerned with what is most constant and fundamental in writing,—with those practical details of contrivance and adaptation which must be present with the writer in the construction of every sentence and the choice of every word." The monograph is practical in its suggestions, and led to the expectation of a *Practical Rhetoric*. Does the Rhetoric fulfill the expectation?

The book has two general divisions, Style and Invention. The subject of Style embraces Diction, Figures and Composition: Invention treats of the Kinds of Discourse.

The part on Invention is a valuable addition to the study of Rhetoric. Nothing so good has as yet been published for advanced students of English Composition. Especially helpful are the discussions of Description and Narration.

Not so good a judgment can be pronounced upon the first part of the Rhetoric,—the treatment of Style. As a work for beginners, it can hardly be called practical.

There is a needless number of divisions. Frequent repetition of discussion increases the bulk of the book and tends to confuse the student. The Province and Distribution of Rhetoric is repeated under the Introduction to Style. (p. 11.) After a long and thorough treatment of Choice of Words, (pp. 29-48,) we have the Choice of Words again considered under The Characteristics of Prose Diction (p. 64.)

The divisions are sometimes misleading, as the two divisions of figures, figures that promote *clearness*, and those that promote *empha-*

sis. But in the original division of the qualities of style, emphasis is not mentioned. Is emphasis equivalent to force? The author seems to have a passion for logical division and amplification, which has led him into serious errors for a *practical* Rhetoric.

The qualities of good style, clearness, force and beauty, are treated by themselves, and not connected with the number and arrangement of words and the use of figures, the mechanics of style. Such a separation may be logical, but it is not practical. Collocation (p. 117) properly belongs to clearness. The use of figures especially contributes to force and beauty. Syntax is reached late in the discussion (p. 110); but grammatical purity should be considered at the beginning, for it underlies and conditions any work on style.

Condensation, repetition, and inversion are valuable parts of Fundamental Processes, but the other twelve parts might have briefer and simpler treatment; and the whole subject might be placed under Number and Arrangement of Words.

The Unity of Discourse is no improvement over Blair's laws. The long discussion on the Paragraph is involved in the laws of the Sentence, and all suggested in a single paragraph of Hill's *Principles of Rhetoric*.

As a book for beginners, the treatment of Style lacks simplicity. Students should master the essential elements of style, before touching its subtler phases. Many parts of Genung's *Rhetoric* are helpful to the teacher, but a hindrance to the young student. Poetic Diction (pp. 67-68), Types of Prose Diction (pp. 69-76), and Diction as determined by Object and Occasion are practical only for the advanced student.

"Practical Elements of Rhetoric" is not a book for the High School and Academy, but for advanced classes of the college course.

The book for the average Freshman is yet to be written, though Hill's *Principles of Rhetoric* is probably the best published.

Professor Genung's work is a philosophic and exhaustive discussion *about* Rhetoric, rather than a practical text-book *of* Rhetoric. It should be in the hand of every teacher: it is a rich mine of suggestion and illustration: it is practical only for those already familiar with the principles of good writing.

THE ACADEMY:

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DEVOTED TO THE INTERESTS OF HIGH SCHOOLS ACADEMIES AND
ACADEMIC DEPARTMENTS

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*PREPARATORY TRAINING FOR SCIENTIFIC AND
TECHNICAL STUDIES.*

A PAPER READ BEFORE THE SIGMA XI SOCIETY, AT CORNELL
UNIVERSITY, BY CHAS. D. MARX, C. E.

In taking up the treatment of the subject which we have placed upon our programme for discussion this evening, I have been guided by the following views, and have arranged the matter I desire to present to you accordingly. I have assumed that the first object of education is to fit man to take his place among his fellow men as a man; the second to fit him to take his place among the foremost scholars in the science or profession he may have chosen.

We can therefore readily see, that we must immediately distinguish between "general" or "preparatory" education, common to all desirous of pursuing higher scientific and professional studies, and between "specific" or "higher education" in the line of chosen profession.

With a consideration of the education necessary for attaining the first object of education we intend to occupy our time this evening.

It will therefore be in order before offering any suggestions of our own, to see what has been, and what is to-day the practice on that point in countries older than our own, and with a better crystallized system of education. In view of the fact that both French and

English authorities are agreed that Germany possesses the best system of preparatory schools now extant, and in view of the fact that German scientists and professional men are trained in these schools, I have deemed it sufficient justification to restrict myself to a review of the German preparatory schools. Let us sketch briefly their development; then let us look at these schools as they stand to-day, and see whether, in the opinion of our colleagues trained in them, they give a man that training which we have claimed to be the first object of education. If we find our German brethren, both "pure" and "applied" scientists, unanimous that they so do, there will be no need of looking farther for the solution of the problem. The answer is at hand: let us transplant the present German preparatory system as soon as we can to our side of the Atlantic. But if we find that a large number of our German colleagues think the present system far from perfect for attaining the first object of education, it will be wise for us to profit by their experience and not to march on in a path from which we find them retreating.

The following historical sketch of the development of the German preparatory school system is largely condensed from the address delivered by Dr. Meyer, Director of the Dortmunder Realgymnasium, before the Dortmunder Society of Engineers; Jan. 10, 1886. (*Zeitschrift des V. d. I.* 1886.)

During the middle ages the Universities were the higher seats of learning. They trace their origin to a desire on part of the church to train its clergy to read the Holy Scriptures, to study the writings of the 'fathers of the church' so as to be able to explain them, and finally to gain an understanding of the Canonical law. All knowledge in those times was therefore in the service of the church. However, since these Universities were the only places where an opportunity was afforded for acquiring advanced training of any kind, and since the admission of students was coupled to no other restriction than that students should obey the rules of the school, youth and men who did *not* intend to fit themselves for the service of the church, crowded to these schools in large numbers. The preparatory linguistic and general training for those desirous of pursuing ecclesiastical studies was given by the faculty of philosophy *at the University*. That faculty, therefore, formed a preparatory school, which thus took the place of the gymnasia of to-day. The majority of students at the university pursued only the preparatory course.

When, towards the end of the middle ages, the study of the classics was pursued for its own sake, and no longer as a means to an end, the philosophical faculty grew in importance. The study of grammar and rhetoric; of the elements of Greek (now first introduced); the reading of the Roman literature; all these no longer served the sole purpose of preparing for the service of the church, but were taken up for the purpose of studying the transmitted monuments of classical antiquity, and of training men to use these literary monuments as models for their own work. The educational ideal of that time was: Ability to converse understandingly on anything and everything in literature.

We now come to the period of reformation, which latter was, at least in part, caused by the new spirit of education. Both the Catholic and the Protestant churches strove to press the new mental life into their service. To the latter especially is due the credit of having first energetically utilized the more thorough knowledge of the classical languages. The Protestant church needed ministers who could not only read the Latin Vulgata, and the 'Church fathers' so called, but who could also understand the Holy Scriptures in the originals. The young theologues thus required a better preparatory training than had heretofore been customary. Besides a complete understanding of, and a facility in the use of, the Latin language, at that time the language of the educated classes, they also needed an elementary knowledge of Greek and Hebrew. Schools were therefore endowed, in which those who proposed to devote themselves to the service of their church or of their prince, could get a preparatory training. These schools were created by special endowments of some prince, by the liberality of some wealthy town, or by modification of existing convent and church schools. Such is the origin of 'Gymnasium' of to-day. The scope of the curriculum was a narrow one. Latin was the principal subject and claimed most of the student's time. Greek and Hebrew were taught; but both were deemed of equal importance until the end of the last century. The aim and object in the teaching of both of these languages was to help the student to an understanding of the old and the new testaments. The amount of historical, scientific, and mathematical information imparted was but slight and served exclusively the purpose of elucidating the Latin classical authors.

A far-reaching change took place in the closing third of the last century, both in the development of the arts and sciences and in their

relative position. It was a century of enlightenment, in which the exact sciences, natural philosophy, mathematics, etc., took an upward flight such as had not previously been thought possible; a flight which lifted them from a position of servitude to one of independence. The philosophical faculty therefore, by whom the subjects mentioned were taught, then gained in importance, and soon stood on a footing of equality with the other faculties of law, theology, and medicine; which latter could no longer retain their favored exclusive position. The philosophical faculty was thought to embody in its teachings all the elements of modern theories and of general knowledge demanded of every educated person. A knowledge of Greek was now deemed of value, not only to young theologues but to every student. The study of the antique was re-born under Lessing and Winkelmann. The humanism of the reformation was replaced by a broader, a nobler one; and a wide influence was exerted on German art and literature. It is but natural that the 'mental tendency' existing at the close of the last century, should have exerted its influence on the gymnasia. Was not the foundation on which they were based strengthened? Was not the exclusive value of antiquity as a means of education of youth confirmed anew?

For a time the attempt was actually made to enable the students 'to grasp the spirit of the antique world.' The gymnasium was not to serve the purpose of training its pupils for special studies, but was to give them the general *human culture*, which at that time was deemed perfected and incapable of farther development. It was then that this idea of 'general culture' originated and intoxicated every soul. '*General culture*' was the embodiment of everything that tended to beautify and embellish life; of everything that in the sad political state of those days, tended to make life worth living; of everything that shone warm and bright in the far distant ideal world of antiquity. General education, under the influence of classical views took a stand in direct opposition to practically useful education. General culture was considered something nobler and higher than the acquisition of knowledge necessary for the exercise of a certain specific vocation. This arrogance which considered a general, purely literary, education 'a higher one,' and the corresponding lack of respect for the knowledge useful in practical life, has been fatal to the development of our higher preparatory system, and to our whole national life. Contempt of the people, of all expressions of popular thoughts and desires, on part of the reigning bureaucracy

which latter checked the national development at the time of the 'wars for liberty;' the intentional slights of all progress which the exact sciences had meantime silently made, and which progress had already been usefully applied elsewhere: the inclination to pass useless critical judgments on each and every such fact or event; while at the same time, ability to 'actually create' was lacking: all these fatal consequences of this arrogance of general culture, our people have been obliged to pay dearly enough for. We became the famed nation of thinkers and dreamers, whilst other nations marched steadily along in matters of practice.

Man's deeper study of nature, the increasing utilization and application of its forces and laws, have led in our century to a complete revolution in all the varied spheres of life. On the moral basis of a modern conception of the world, new social problems arise which call for our earnest attention. In all civilized peoples an active national feeling and life has been awakened. Attention is being paid to domestic national development, and also to the development of mankind in general. No longer need we go back to antiquity for examples of manliness, strength of character, justice, and self-sacrifice. No longer need we go back for examples for the poetical expression of our feelings, for the appropriate poetical clothing of great events. The noblest and best that our own masters have created surely stands on a par, in all domains of art and literature, with the creations of antiquity. For the great questions of national life staring us in the face to-day, we find no answers in antiquity. Compulsory education; care of commerce and industry; of agriculture and internal communication; colonial and social politics; these are definitions and problems which have sprouted only in the soil of modern times. And thus whilst giving all due thanks to antiquity, it is very natural that grave and serious objections should have arisen against the undue prominence granted it in the education of our youth. Repeatedly the schools have grown unfaithful to their trust, that of preparing their pupils, through the study of the classical languages, for the practical purposes of life. Therefore the attempt was made to do without the classics, at least for those professions which pre-supposed no advanced university or scientific training. The 'Real Schule' was founded; which took into its curriculum, and based its education on, studies chosen from the rapidly developing subjects of mathematics and the natural sciences. Its aim and object was to fit men for practical life, instead of giving them a purely lit-

erary training. Surely the idea was not a new one. As early as the 16th century, Luther warned the schools against neglecting the demands of practical life; repeated attempts were made in the 17th and 18th centuries to make the schools conform to this point of view; but not until 1831 did these attempts meet with official recognition. Not until then was it possible for the new schools to develop.

It cannot be denied that since that time two antagonistic ideas have entered officially into the 'education of youth.' The strife has not been definitely settled to this day. Credit is due to the Prussian Department of Education for having regulated and led into a common channel, 'as far as possible,' these diverging currents. When the Real Schulen, after a period of probation of twenty-eight years, showed that the ideal side of man's nature can be developed whilst paying at the same time due attention to the demands of modern life, the educational decree of 1859 placed them on the same basis as the classical gymnasia, subject however, to one condition: The study of Latin, at least, was to be taken into the curriculum of the school, and made obligatory. So the Realgymnasium came into existence, occupying a position midway between the Gymnasium and the Oberrealschulen.

The year 1882 marks another turning point in the educational development of Prussia. Since that time it has two groups of what we may call high schools (preparatory schools.)

(1.) Those which give a preparatory training for the professions requiring further study either at a University or Polytechnicum.

(2.) Those which give a preparatory training for those callings which do not require this further study.

The first group includes the gymnasia, Realgymnasia, Oberrealschulen, as well as the Pro-Gymnasia, Pro-Realgymnasia and Real-schulen, three genera, with two species under each genus. In the second group we find only Bürgerschulen. The Gymnasium, Realgymnasium, and Oberrealschule have each nine one-year classes. The Pro-Gymnasium, Pro-Realgymnasium, and Realschule, are in one sense preparatory schools for the schools having a full complement of classes.

The Gymnasium as in 'the days of old' bases its training on the study of the languages, and especially of the classical languages. Of the 268 hours of instruction per week (not quite 30 per class per week) more than one-half, namely, 138, are given to foreign languages, and of these 107 are given to Greek and Latin. The

other hours are allotted to Religion, German, History and Geography, Arithmetic and Mathematics, Natural History and Physics, and two hours are devoted to Penmanship and Drawing; but this in the lowest classes only. Since 1882 the study of Greek is begun in Tertia, thus giving a practically uniform course for both Gymnasium and Realgymnasium up to that time. The advantage of this unity is evident, as there is no need of parents' making a decision as to the future career of their child previous to that time.

Whilst the Gymnasia still consider the classical languages the nucleus of all higher training, their rivals, the Realgymnasia, have more modernizing tendencies. They lay greater stress on a scientific study of the material world, on a thorough knowledge of the mother tongue, and of the languages of the two most important civilized European nations. Of the 280 hours per week, almost 40 per cent are devoted to the foreign languages, 30 per cent to mathematics and the natural sciences, and the remaining 30 per cent to German (on which more stress is laid than at the Gymnasia), History and Geography, Penmanship and Drawing. In common with the Gymnasium the Realgymnasium has the study of Latin; which, as concerns the reading of Latin, is carried as far as at the Gymnasium. (Latin Composition; however, is omitted.) The characteristics of the Realgymnasium therefore are, to repeat: The laying of greater stress *on* and more thorough instruction *in* the mathematical-physical sciences, as demanded by the wants of a modern culture, for all professions, without exception. Concurrent with this instruction and closely related to it, is the more systematic development of the power of discerning the relations of things in space, which development is obtained by a carefully fostered course of instruction in drawing, extending through all classes. Finally, the Realgymnasium uses the modern languages and literature as store-houses from which to draw the motive forces for shaping the education of the present time. Dr. Meyer says: 'As in our own literature, we find in the masterpieces of the French and English speaking peoples, the pure gold, newly coined, of the rich mines of antiquity; we find the ideas which from all sides act upon us, which embrace our life of to-day and actively urge us forward. Ideas the non-possession of which would prevent our understanding the changes which are taking place about us, the non-recognition of which would render us powerless to protect our national characteristics, the non-mastering of which would make our education one sided; and familiarity

with the modern languages, with the mental fabric woven in their looms of thought, must be considered most essential factors in modern education.'

The Ober-Realschulen, developed out of the higher industrial schools, have by the decree of 1882 been placed on a partial footing of equality with the Gymnasia. As Latin is omitted from the curriculum, more time is gained for instruction in the mathematical-physical sciences and in drawing. The study of French is begun in the lowest class. This school therefore has cut loose completely from antiquity. Why it has failed of success, we well know. It was conceived as a preparatory school for engineers and architects; but the architects oppose strenuously their own separation, (at least it is an implied one) from the other higher professions, and the engineers will probably do the same. I should here add that this opposition is not based on the objection of unsuitable preparatory training in the Ober-Realschulen; but it owes its origin to the fact that, whilst the graduates of the Gymnasium and Realgymnasium still find every profession open to them, the graduates of the Ober-Realschule could become only engineers or architects. It is evident that as long as this state of affairs continues, the Ober-Realschule cannot flourish; though the principle underlying its foundation is evidently a sound one. It seems that the national feeling in Germany is not yet sufficiently well developed to admit of a complete severing of the Latin ties which bind it to antiquity, but surely this time will and must come, and with it the growth of the Ober-Realschule.

Unstinted praise must be given the authorities for receiving the "Higher Bürger Schools," as officially recognized higher preparatory schools. These excellent schools are intended to give a limited scientific and general training to those who do not desire to pursue advanced studies. The higher Bürgerschule has a six years' course, in which two foreign languages are taught. The study of French beginning in the first year and that of English in the fourth. The aim of this school is to carry its pupils about as far as the Ober-Secunda of the schools mentioned above; but it has the decided advantage over these latter, that it gives to those who desire to pursue no advanced studies, a rounded and in a sense complete education.

This is in substance what Dr. Meyer has to tell us of the development of the German system of preparatory schools and their present condition. I would now present the criticisms on these various

schools. The most complete is perhaps the General Report of the "School Committee of the Society of German Engineers." Here are resolutions adopted by the society :

"*Resolved*, That the German engineers have the same needs of general instruction, and desire to be judged by the same standard, as the representatives of the other professions requiring higher (University) training.

"*Resolved*, That the curriculum of the Gymnasium based on the acquirement of the Greek and Latin languages, and consequently arranged in the main only for students of theology and philology, does not give a general education commensurate to the demands of the present times.

"*Resolved*, That the other high schools existing conjointly with the Gymnasias, namely those which in a nine years' course take up the study of at least two foreign languages, (*i. e.*, in Prussia the Realgymnasium and the Ober-Realschule) have been hampered in their development.

"*Resolved*, That they have not been in a position to grow to their fullest capacity, because the same rights and privileges have not been granted to their graduates, as have been granted the graduates of the Gymnasias.

"*Resolved*, That as long as these general preparatory schools of a high grade exist side by side, they should be placed on an equal footing as regards privileges. The transition from any one of these schools to any other, for the purpose of pursuing studies for which the first named does not properly prepare, should be facilitated. (The German Society then throws out the following suggestions for a reform in the educational system.)

"*Resolved*, That in the future a unification of the higher preparatory system, in the lines indicated below, shall be aimed at: namely, that a primary course from three to four years be followed by a secondary one of six years; the latter to contain, in addition to German, Religion, Drawing, Arithmetic, Geometry, History and Geography—in the first three years one modern foreign language (English or French) and descriptive natural history (object teaching,)—and during the last three years a second foreign modern language, (according to circumstances, perhaps Latin,) natural sciences and mathematics."

Graduates from this course to be entitled to serve as one year volunteers.

This six year course is to be followed by one of three years, the latter to have two divisions, with some subjects of instruction in common, however. One division is to carry on its work on the basis of classical languages, the other on the basis of modern languages, sciences, mathematics and drawing. Both are to give a preparatory training for the various university and professional studies. Transi-

tion from one division to another is to be made possible. Graduates from either division are to be admitted to all advanced studies at university or polytechnic on making up the studies in which they may be deficient.

Dr. Lunge, the eminent chemist at the Polytechnic of Zurich, reviews the present preparatory systems and expresses himself as follows:

"Pens more powerful than my own have long ago destroyed the myth that it is only through the study of Greek grammar and the reading of a few Greek authors in the original that 'formal education,' that 'ideal training' can be obtained such as enables the mind to develop to its fullest capacity. It seems almost useless to refer to this matter; not because I am sanguine enough to think that the statement, so long ago recognized as fallacious, no longer has its supporters, but because I think that enough has been said to convince the unprejudiced; and against the prejudiced neither argument nor reason will avail. I would, however, like to express my convictions on some of these points, convictions which have grown stronger from year to year.

"I hold that the training given at the Realgymnasia (aside from special preparatory studies) taken as a whole, must give better results as regards the general 'humanistic' education of man in our time, than the training of the so-called 'humanistic gymnasia,' to which I can only accord the title of philological gymnasia; and for the reason, that in most cases neither time, capacity for work, nor health admit of the taking up in addition to Greek, of those other branches of study which, especially to-day, form a much more integral part of a general education than does the Greek language. Of the subjects which the Realgymnasium teaches more fully, in place of the Greek, we will leave out the mathematics, and only consider the modern languages. It is infinitely more important to have a sufficient knowledge of French and German for all conditions of modern life, for the grasping of the achievements of the modern mind, yes, even for the pursuit of most advanced studies, than it is to have a knowledge of Greek. Aside from this fact, we have repeated opportunity for actual practice in the modern languages and for perfecting ourselves in them, whilst our school knowledge of Greek in most cases grows rusty, often beyond recognition. Far be it from me to deny the influence, though not always a salutary one, which the literature of the Greeks has exerted and will exert on our mental devel-

opment. However, it cannot be denied that since this influence has been exerted during a period of several centuries we enjoy its effect through many other channels than those of the original, and that in addition there has also accumulated much of new educational material in the literature of modern nations, which only incarnate pedagogues can consider as of less value than the literature of the ancients. Is it not contrary to common sense that we should distract our sons six hours per week for six years, in order to enable them to read, finally, with the aid of a translation, a passage in Sophocles or Thucydides, from the reading of which passage, they will, under the circumstances, not even derive pleasure? Again I ask is it not contrary to common sense, that we should do this, while Shakespeare remains to our sons a sealed book? Why do we advise them here to read translations, and not do the same in the case of Greek? But I must check myself, though the following out of this line of thought is tempting. Lest I be accused, however, of being a blind man speaking of colors, I will add, that I am myself the graduate of an excellent Gymnasium, that I showed special aptitude for the classical languages, and passed an excellent examination at graduation in all philological subjects, especially Greek."

With reference to the importance of drawing Dr. Lunge has this to say:

"Little stress is often laid on the educational influence of drawing; and for that reason I would like to make a few remarks about it. I consider the lack of instruction in drawing one of the most serious defects of the Philological gymnasia, especially as bearing on the 'general education' of men. Now-a-days we justly expect every educated person to be able to express himself at least fairly well in writing; in other words, we expect him to be able to express his thought clearly, correctly, and with a certain facility. But the large majority of educated persons are incapable of holding mental impressions and reproducing them with the pencil. That inability not only deprives them of innumerable advantages and pleasures, but also precludes the possibility of satisfying, in a thorough manner, the urgent demand that a general education should also include some knowledge of art. It is not even primarily a question of fixing received impressions. Pictures of all kinds do that better and more readily; but we must lay stress on this important fact: Only he can see properly who is at least able and accustomed to reproduce to some extent what he has seen." Drawing, like all things requiring

manual dexterity, must be practiced from youth up, if any success in its application is to be obtained.

This quotation from Dr. Lunge's paper, may conclude with the scathing criticism which he visits upon the gymnasia for the neglect of the study of the natural sciences.

"But few words need be wasted in speaking of the grave injury which the gymnasium instruction inflicts on the general mental education of modern man by neglecting the natural sciences. Open doors need not be burst open. I think I have said enough to show that a knowledge of the Greek language, valuable enough in itself, is purchased at far too high a price when we for its sake force the modern languages, the natural sciences, and drawing, into the background. And, bear in mind, I am still speaking of general education, be it that of the statesman, the lawyer, the physician, the historian, the chemist, the scientist, the merchant; aye, or even that of the philologist. I dare enunciate that the philologist, lawyer, or physician who has neglected these educational forces, lacks much more of a true mental culture, than the graduate of the Realschule who later on becomes a thorough mechanical engineer or a merchant."

From what has been brought before you this evening, it will be seen that the present German preparatory system has great and serious faults. Some suggestions for remedying them were contained in the resolutions of the German society of engineers; which resolutions we have already heard. I would, however, like to present, before we pass to a consideration of our own preparatory system, the opinions of Dr. Holzmüller with reference to the future German preparatory system. After a review and criticism of the present system, and after having made suggestions as to changes that may go into effect immediately, he says: "All thoughts and wishes expressed in what precedes are of value only so long as the classification of our higher preparatory system remains the same as at present. The writer holds firmly the opinion that the next century will and must bring about a complete change. And why, do you ask? The old classical world is a complete rounded whole, with fixed content. It is the task of special sciences to investigate its riches, and to hand down to posterity knowledge of that portion of it which is deemed sufficiently valuable. Most of the material lies in a philosophic-historical and philosophical domain. The mechanical engineer can learn nothing for his profession from antiquity, the civil engineer but

little more. Architects and other artists may profit somewhat by the study of ancient works; but for the mathematician and the student of natural sciences, on the other hand, the information handed down from antiquity is of comparatively little importance.

The "contents of the modern time," on the contrary, increase from day to day, and that so rapidly, that they are already much richer, much greater, than those of antiquity. In the domain of natural sciences and technology there is developing such a plenitude of new thoughts that antiquity is thrown quite in the shade, and a complete change of modern civilized life is brought about. If we call him "liberally educated" who is capable of understanding at least the civilization of his own time and country, it readily follows, that the definition of a "liberal education" cannot be a fixed one, but must be progressive. In this sense, the influence of the present time must grow daily in importance; whilst the world of the Greeks and Romans must naturally recede into the background. The mass of material that must be mentally digested forces us to a division of labor. That tendency leads, in the domain of schools, to the founding of special professional schools. In view of what we have said, it is apparent that this separation into special schools will in the next century be a much more complete one than in the present. If therefore there is to be a common tie for the educated people of a nation, to avoid the danger of the formation of small groups, incapable of understanding one another, no division of labor can or dare take place in the domain of general education. No *special*, in the sense of professional schools can serve the purpose of giving this general education; it must be given in schools of a common general character. The necessity of obtaining unity in our higher preparatory education is as yet not recognized by all; but from decade to decade it will become more apparent and pressing.

No longer ago than the last century the common character of the higher schools was one based on antiquity. Rome and Greece were the fountains from which we drank. Our literature, with its incessant classical allusions, proves this. Now, when modern life can no longer be ignored, the fields of antiquity must gradually be deserted, and the research in them restricted to the special schools. I am of the firm conviction that the rupture with antiquity will finally be a complete one. The higher preparatory schools will have a common substructure, which as far as languages are concerned will be of a modern character. Not Latin, but French or English, it

matters little which, will govern the lower classes. Not until we reach the higher classes will the schism take place which corresponds to the special inclinations of the individual. The later this schism takes place, the better the organization. If this is done, we shall educate more practical citizens than to-day; we shall cease to be the nation of abstract thinkers, *i. e.* of impractical dreamers. But then all ideals will be lost, "we shall cease to be happy" many a classical philologist will complain. Him we may give the answer: "That the world of ideals which each one of us carries in his innermost breast; in which he will take refuge when he desires to withdraw for a short time from the strife and turmoil of the world and every day life; this world of ideals can never be lost. Here we must bear in mind that our first aim in life should not be, to be happy, but to do our duty."

Having now traced the development of the German preparatory system, having presented criticisms on the same and suggestions for its improvement by men competent to make them; is it not our duty to our fellow men, to bear in mind these criticisms, based on experience, in developing our present imperfect system of secondary education? Are we justified in forcing it into those narrow moulds which we find our cousins on the other side of the Atlantic so anxious to abandon? *They* are trying to break loose from the influence of the traditions and customs of centuries, in educational matters, and to develop a rational modern system. *We*, lacking that hampering influence, have the advantage of being able to go on without severing any such strong ties.

What studies then should a modern preparatory course include? What studies must *we* deem essential for obtaining that preparatory "liberal" education, which every educated person, be he philologist or scientist, lawyer or architect, physician or engineer, should possess? It is easy to give the answer after what we have heard. Modern languages, mathematics, natural sciences, history and drawing, must enter into the curriculum of such a preparatory course.

In the study of languages, the most attention should be paid to the study of English, including its Literature. At least a reading knowledge of both French and German should be obtained by the pupils of this preparatory school. The study of these languages should have a place, in a University or advanced course, only for those who are desirous of making a specialty of them for the purposes of philological investigations. Mathematics, arithmetic, plane

and solid geometry, plane trigonometry, and algebra including quadratics, could well be required. In history, the preparatory student should have a thorough knowledge of American political and constitutional history. A fair knowledge of general history, and especially of English history, would also be requisite for a thorough understanding of our own. Physiology, chemistry and physics are the natural sciences to which considerable time should be devoted in the curriculum. There remains the study of drawing, which heretofore has been shamefully neglected in our preparatory schools. As to its importance, I have quoted strong authorities; and the agitation which is just now going on in favor of manual training schools, in which the various kinds of drawing form so essential a feature, shows clearly that we are already awakening to the necessity of introducing drawing as an essential factor of our educational system. Freehand and linear drawing, including simple perspective, should therefore be comprised in the above list of preparatory studies.

These then are the required studies for a liberal education. That our present preparatory schools can not and do not teach them in a satisfactory manner we know. Our aim therefore should be to help them in their every endeavor to teach well what they can and do teach, and to urge upon them the necessity of laying stress on the teaching of those subjects which we deem essential for a liberal education. A knowledge of all the subjects mentioned above, to the extent in which they already enter into a high school curriculum, should be considered an essential pre-requisite for the pursuit of advanced studies at the university, be these studies in philosophy or engineering. In other words, we must raise the standard of admission, and raise it as far as the subjects above mentioned are concerned uniformly for all the courses. Additional requirements, a certain amount of knowledge of the classical languages, could be made for those desirous of doing philological work, and "higher mathematics" for those entering purely technical courses. The advanced instruction could be given in the last year or two of the preparatory course, when, as indicated by our German friends, a bifurcation might well take place. But I agree with Dr. Holzmüller, that the longer we postpone this bifurcation the better it will be for the interests of general education. Professor Ladd in a valuable article on the development of the American University, in the September *Scribner's Magazine* shows clearly how that development

must necessarily depend on a re-organization of our present secondary system. He arrives at conclusions somewhat similar to our own. Only he errs, it seems to me, in placing his dividing line between the two main courses, at the beginning of the secondary education. Professor Ladd calls secondary education "such education in addition to that primary education required of every one by the state as the University must require for admission to its privileges." He furthermore insists upon introducing the study of one of the classical languages into that branch of the curriculum after bifurcation, which the embryo scientist and engineer is to take up. That there is no justification for this demand I think we have amply shown. In addition, Professor Ladd has entirely omitted from his curriculum the study of drawing, a mistake more serious than either of the others.

If we recognize the principles just laid down as correct; if we admit that the curriculum outlined will give that preparatory training which we have deemed essential for making a liberally minded *man* of him, before we convert him into a scientist or engineer, it would follow that all our endeavors should be directed towards a re-organization of our secondary school system. Let the influence of our numbers be felt by their insisting on an improvement in the lines indicated. Let them see that the modern languages, the natural sciences, mathematics, history, and drawing, are taught and well taught in all our preparatory schools, and we shall then no longer send into the world narrow specialists, be they philologists or engineers, but broad, liberal minded men, "knowing themselves and fitted to the times."

Herbart, the German philosopher who, far more than any other, gave direction to modern German pedagogy, expresses himself as follows on the value of linguistic studies :

"The philologists may express in the newest phrases their familiar old argument about the disciplinary value of language study. All this talk is empty words, by which no one will be convinced who knows the far greater formative power of other subjects of study, and who looks with open eyes upon the world, wherein live men not a few and not unimportant, who, for their intellectual existence, are under obligations to no Latin school."

THE WORTH OF THE ENGLISH TONGUE.

BY PRINCIPAL WILLIAM K. WICKES, WATERTOWN HIGH SCHOOL.

Many readers of THE ACADEMY remember the furious onslaught made a few years since, against the teaching of the ancient classic languages in secondary schools. But here was the practical difficulty in the attempt to oust the Greek and Latin; ignorant men could not intelligently, or cultivated men conscientiously, decry the value of those languages for the purposes of that higher education which it is the province of the high schools to begin, as it is the duty of colleges, seminaries and universities to finish. And so, the attempt became sheer iconoclasm—and failed. But suppose those men—the ignorant and the comparatively cultivated alike—had had any true and adequate conception of the worth of the English tongue—of its glorious possibilities—of its immeasurable importance to every boy and girl in America—what think you, thinking friends, would have been the fate of the classics in the schools? Perhaps you dare not even venture an opinion, or hazard a guess—possibly shrink from the question with sticking voice and hair erect, as you convulsively clasp your well-thumbed and beloved Virgil. Well, I do not know, but I verily believe that neither the power of modern science—whose word-battery is almost wholly Greek—nor the warlike Achilles, nor the bow of Ulysses, nor the immortal Ten Thousand, would have saved the Greek in such a “rugged and awful crisis”; and for the Latin, had *it* survived the struggle it would not have been because of Cæsar’s sword, or Tully’s pen, or Virgil’s song—but because of a feeling that the study of their language would greatly aid to a better and wider knowledge of our own tongue. Yes, and on the books of many a board of education would have been spread the record—“The resolution of Mr. Saxon, that the study of Greek and Latin be hereafter discontinued, was carried.” And underneath it, in a fine, clerkly hand, somebody would have written in Hebrew—in mockery, or in sadness,—*Ichabod*. But no; when the troubling of the waters came, the poor, crippled English had no friends to carry it to the pool, and so the Greek and Latin stepped down and in before it and were newly healed of their recent hurt. Therefore are they now

almost as good as new for years to come. But one intently listening might have heard the English softly and sadly saying,

“ I would that *my* tongue could utter
The thoughts that arise in *me!* ”

COMPARATIVE WORTH.

Our English tongue needs only a fair hearing in order to prove its worth, when compared with any language, living or dead. The Romance languages are breathing, indeed, but not growing; the German is too ponderous for our swift-moving age and land; the best of the Latin long since was transplanted into the English—and the Greek is dead. Mark, I am not speaking now of literatures, but of languages. Of the great value of much of the literature of the modern classics, as respects alike its informing and refining nature, there can be no doubt, and with added emphasis, surely, the same may be said of Latin eloquence and Greek poetry and philosophy. But who will say that teachers themselves, as a rule, are thoroughly conversant with the wide range of such literary studies? And as for their pupils, alas! who does not know, that the very process by which they reach simply the outermost rim of the charmed circle of such studies, almost invariably and inevitably takes away all thought, either of poetry, eloquence, or philosophy?

There are those, I know, who seem to estimate the worth of a language as they might cheese—by its age; the older the better. Possibly, but not necessarily better *because* older. Nor ought they to forget that, in a practical contest between the dead and the living, the presumption at least is always in favor of the living. It has not only “reason to be”—it actually *is*. And though they may reverence the dead and revile the living, it cannot be denied that to all practical intents and purposes of this present life, even, “a live dog is better than a dead lion.” (Differences in dogs, of course). But what answer, after all, can these praisers of languages gone by make to the fact that English is both old and living? It was alive in the days of Alfred, and has come down to us freighted with a thousand years of historic and literary wealth. It records a living civilization, and is itself alive and vigorous. It is enjoying a green old age; by gone tongues, a *verd antique* age. Vast is the difference, though the words mean the same!

The language of any nation is the written and spoken embodiment of its genius, customs, traits and needs. The only true way,

therefore, to compare languages, is with specific and sole reference to the whole of each national life thus embodied. Measured by such a standard, our English tongue cannot be put to confusion. Yet, even then, if all the hard things that have been said about it as an anomalous, grammarless, harsh-sounding tongue, are to be taken without a jot or tittle of abatement; if all the "sweet breath" that has been uttered in praise of well-nigh every other literary language is to be received as infallibly, unexaggeratedly true; the test might possibly be feared by some timid souls. Yet as clear as day is the fact that for all the varied and multitudinous needs of English and American life, the English tongue is truly incomparable. What Mr. Gladstone said of the English constitution—that it is a "most subtle organism,"—may with equal truth be said of the English language; indeed, so subtle, I grant, that it is sometimes difficult of perfect interpretation, unless used by a master writer or speaker, and judged by a master reader. But less than this very complexity of speech would poorly serve the tremendous demands of our complex civilization. Think into how many avenues of life never entered by the Greek or Latin, our restless, ready English speech must go! What varied needs of the body, mind and soul it must voice! There are times, indeed, when if all the splendor and strength of all human languages were moulded into one, and the power given to some Nestor to utter that splendor and strength to their extremest verge of meaning—the voice would still be painfully inadequate. But we speak now of the every day English of every day life. Nor is it any argument against the worth of our tongue that a native, even though uneducated in its use, may yet manage to make himself understood. Great praise to *it*! Little thanks to *him*! Many a man born into the inheritance of our grand tongue, is of the same way of thinking as Sancho Panza, who rebuked by Don Quixote for saying "cantity" instead of "quantity," inquired of the Don what difference it made so long as he understood him. Why, my heedless countrymen, it makes a world-wide difference to you, if you will but stop to consider. You may be rich, be clothed in purple and fare splendidly every day, but if you have neglected the plain truth that the mind is more than the body, just as "the life is more than meat"—in short, if you do not know some elementary truths, at least, and how to utter them in "the tongue wherein you were born"—you will certainly make a grave mistake, which will often make you ill at ease in presence of poorer, yet richer men.

To most of us has been ordained in this world the doing of common things. What Wordsworth calls "the primal duties" are ours,—"the generous inclination, the just rule, kind wishes, and good actions, and pure thoughts." Now, tell me, pray—in so far as speech is concerned in the doing, what tongue can compare with the English? Nay, what element of that tongue is so simple and strong as the English element itself? The words of Latin stock may be more numerous—but far more used and useful, the English. The English language has two suits of clothes—its Sunday suit, a splendid mixture of Latin and Greek—and its every day suit of Saxon, homely but strong, and warranted all wool. The former it dons, if at all, once a week (and on other great occasions), the latter, every day and wears all day. The language of mirth, of sorrow, of the ever blessed life of home,—is it not in its very warp and woof, the short, strong, sweet speech of pure English? Tell me what words of old English times and life longest linger in our language, and ever and anon re-appear, like hardy flowers that have survived all killing frosts. Are they not the very words which this work-a-day world can illest afford to lose? Nor will it lose them, till the things of which they speak perish out of the world's life; for no word wholly goes out of use until the use goes wholly out of *it*.

Nor ought it to be forgotten that in what language soever we may find our drilling, our reading, and linguistic culture—it is in English that we do our thinking, even while we drill and read and absorb culture. We hobble painfully along on, and I might, perhaps, say *through*, our Latin and Greek feet, and would soon, very soon, be out of the race, were it not for stout, sturdy English legs on which to rest or run. I never knew of but one American youth who said, she did all her thinking in French, but I afterwards found out that she had studied that language for a year or two at a fashionable seminary.

COMMERCIAL WORTH.

I know that it does not enhance the real glory of the English tongue to suggest that it has a commercial value. But in these days and in this land, it certainly has; and we do well to take account of it. It is indeed a serious question as to whether the commercial spirit of the age does not hurt more than it helps the cause of good English. Shylock, the Jew, is absorbed in money-getting, and cries for his lost ducats are blended with cries for his runaway daughter!

The lives that concern themselves solely with the things "that perish with the using," will show a hard, if not harsh, materialism in the thoughts, and the language certainly will not rise higher, or be richer and worthier than the thoughts. I do not remember to have seen or heard this argument put forth in just this way,—but yet, it can be logically and actually proven. To illustrate: I once heard a very wealthy man, in a public after-dinner speech, "turn a sword into a ploughshare" and a spear into a sewing machine. It was, you see, the commercial value the man had in his eye, and it ran down to, and off the end of his tongue. But how he missed the mighty and blessed import of the Bible phrase, didn't he? I saw in Rome an American who had grown suddenly rich. That became his life. He rode from Florence to Rome by night, and by noon of the next day he had seen all of grandeur that Rome could offer him. Such was his thought. "Why, I went to the Vatican and there I seed miles and miles of picters—no end o' picters." Such, precisely was his language. Well, Brethren to whose keeping this treasure of the English language has been specially confided for transmission to the generation following you,—what is to be done? Is there not danger in ignoring the existence of the commercial spirit? Would it not be the part of practical wisdom to acknowledge it? to beat down the baser manifestations of it? to turn the tongue of youth into the best possible channels of speech? to be wiser, in your day and *for* the next generation, than the race of the Moneybag?

And, after all, there is a sense in which the possession and exercise of this commercial spirit on the part of the young, is both needful and commendable. A great host of them, when school days are over—alas! many of them ere such days are well begun—must earn their living by manual or mental work. No longer like skittish colts, "fetching mad bounds" of delight, on goes the harness and the real work of real life begins. At such a critical time, what a recommend to be able to tell, or write out, in an easy and intelligent fashion what one is able to do. A good address will go, far and away, in its influence, beyond good dress. "My tongue is the pen of a ready writer." What a passport, other things being equal, that ought to be, and is! Into what numerous places of power and profit may they not rise in this land who can wield effectively an English pen, or speak with a becoming English tongue.

There is also a commercial value in a good English style. This point is worth a word or two, inasmuch as the boys and girls of this

generation are to do the speaking and writing of the next. I cannot, indeed, say that a style of real artistic and literary beauty will be worth so much in a money-view, as though deformed by sorry puns, bad spelling and the like. But the apparent success of the latter over the former comes about, I think, through the fun-element which people think, at least, to reside in such writing. Meanwhile, the author or authoress whom in early days some painstaking eacher taught good English, will continue to write in the pleasing consciousness of doing good, honest literary work—and will continue to be read when the mere humorist—the humorist at any cost,—is laid away on a forgotten shelf. Washington Irving attributed his success, as an author, in England, to the astonishment of Englishmen that an American could write good English! and I think it might be added, to their admiration, also. Moreover, this man had the tact to mingle with the grave, that genial spirit of humour which the world ever has, ever will crave.

The spirit of trade has made its mark, deep and wide, upon the age. The English flag of trade floats in every harbor, and the American traveler is on board of every vessel. And so it comes to pass that the English language, more and more, is making its way to every quarter of the inhabited globe. To possess an adequate, useable knowledge of it, therefore, is daily becoming more and more important. Moreover the best thing about it all is, that the English tongue is not only equal to present needs, but to prospective needs, as well. True, it has somewhat lost that power of recombining from its own Saxon words, which once it had. But this loss is not so serious as would be the case if it did not so readily assimilate such words as it deems serviceable, from other sources. It has rescued many a word from its own meagre speech and scanty national life, has adopted it, and given to it new life and vigor. To be sure, it were better to leave the word to perish unless it is itself really vital, the representative of some vital principle or thing. But more words, of good stock, and with good prospect of long and useful lives, are being born into English than are dying out of it. May we not then safely invest our mental all in a language ever-growing, ever-strengthening, and compounding interest yearly at a generous rate?

CONVERSATIONAL WORTH.

"It's puzzling business, this talking," says George Eliot. True, and many people have found it so puzzling, that they have given

over all attempts at any talking which can truly be called conversation. And yet what more delightful and profitable mental exercise can there possibly be? Prof. Mahaffy well calls agreeable conversation the first of all accomplishments. Well may every true lover of his native tongue mourn over the degeneracy of this entrancing art. If not absolutely a lost art, it yet seems to be "fading, still fading." Let it be conceded at the outset of this argument, that there are great differences in the innate conversing power of different persons. Some men, very facile with the pen, are very thick of tongue. Such was the case with the genial Chaucer. The Countess of Pembroke used to tell him that his silence was more agreeable to her than his conversation. And have we not all heard of "flashes of silence" that were very eloquent? Every musician knows, also, that "rests" in music are oftentimes very effective,—yet only because they follow a burst of harmony, and prepare the ear for the melody to follow. Even so with conversation. We enjoy the lull which follows a fine monologue—we make ready for the next breath of sound to sweep over our attentive spirits; just as a traveler passing through a delightful landscape stops—

"And, pausing, takes with forehead bare
The benediction of the air."

Let it also be conceded that this art is very difficult to acquire—not possible even, in its most perfect form, for great numbers of the human race. It yet remains true that much may be done in way of improvement by judicious and persistent effort,—yes, even by putting more conscience and heart into that which we utter,—compelling the mind to gird itself for effort, and awaking our faculties that they may the better talk. Emerson bases his estimate of Shakespeare's superiority over other writers upon his greater power of expression,—and the same method of measurement may be applied to the conversationalist. In fact, in a very true sense, any man knows precisely as much as he is able to express.

Wherever there has been just and sufficient appreciation of the worth of conversational power, there have been efforts for its acquirement. Many years ago Margaret Fuller Ossoli, in Boston, attracted many of her own sex by her "brilliant conversational classes." But the trouble with such classes is, to keep them midway 'twixt heaven and earth in theme and language,—not so near the ground as to be wholly commonplace and mundane, or so unearthly as to be lost in

clouds of speculation and in mistiness; indeed, they have been known to degenerate into what William Winter calls the poem of Beautiful Snow—"melancholy mush." I had the privilege once of attending a *conversazione* in the city of —. The topic set was The Centennial Exhibition, and each guest, drawing his bow at a venture, was to tell what most interested him or her at that wonderful spectacle. One monologist had just risen into the clouds beyond mental, if not mortal ken, when another was called upon. And thus he: "The thing that interested me most at the Centennial was—Lauber's restaurant." And down, plump! to earth the whole company came. And yet, who that loves a use of the human tongue which mounts above mere chatter about the weather, will deny that there was good in the theory, at least, of the *conversazione*? It is all right, a most praiseworthy ambition, to soar. But, of course, even Darius Green, from the depths of his painful, personal experience is able to tell us,—

"If you insist on a loftier flight,
The moral is,—Take care how you light."

For the highest success in the beautiful art of which we are speaking, many faculties, and all in the ripest development, are needful. But I am not willing to admit—I do not think it to be true,—that nothing can be done towards improving those faculties where they exist natively, although untrained. Bautain tells us that for great success in extempore speaking, there must be an "impulse" which urges a man to speak, as a bird to sing. That is true, also, in the matter of conversation. But the mere process of "drawing out" some people, has been known to prove them, not owls—wise, perhaps, but poor talkers,—but veritable conversational nightingales. To say, then, that this art is to any degree teachable, is to imply that there are teachers—and those teachers ought to be, in a large measure, the very men and women I am now specially addressing; men and women who, alas! are too often like the conies of the Bible, "a feeble folk," but who generally could be, sometimes would be, always should be, the most potent force in the community.

And now, through what tongue shall the art of conversation speak to us? There can be but one answer—the English. St. Paul proved himself a sound linguist when he declared he would rather speak five words with his understanding than ten thousand words in an unknown tongue. For even though we go to foreign tongues for culture and mental luxury, real life expresses itself only in one's.

native tongue. Let us get back, as soon and surely as we can, to that good notion which the very word conversation had in that same St. Paul's day. Then the conversation was the life. Alas! if modern life were to be judged by its conversation, how many a negative answer there might be to Mallock's question, "Is life worth living?" At least, let us seek to deepen and clarify that channel through which the life may make itself known to and bless others—Conversation.

CIVIC WORTH.

The English poet, Cowper, somewhere tells us that it is

* * * "Praise enough
To fill the ambition of a common man,
That Chatham's language is his native tongue."

What a tide of patriotic associations rises in the mind at mention of Chatham's name! No loyal American can afford not to know what words that great orator uttered in behalf of our struggling forefathers. And all those words are in Chatham's "native tongue"—the English. Not only does he utter no uncertain sound—he speaks in no unknown tongue. I did indeed (it was just at the height of the oleomargarine excitement) once hear a fervid boy orator, in declaiming Chatham, cry—"This is no time for adulteration"—where Chatham had said, "This is no time for adulation." But that was the boy's mistake. Yet even *he* could not possibly mistake wholly the glorious spirit of that freedom-loving Englishman; nor wholly fail to drink in the liberty-lesson there taught. But Chatham is not the only man of our English blood who has enriched our tongue by his eloquence, and enhanced the stock of our patriotic memories. For to us belong, in a very real and high sense, Eliot, Pym, Burke, Pitt, Fox and many others. No bead-roll of eloquence in any age or land, can show such a long and shining list of names. Some of them added the moving pathos of their deaths to the glory of their lives. Eliot died a martyr's death in prison; died a death which makes the fate of some of the classic orators of antiquity seem cheap indeed. But it is not needful that we found our argument for the civic worth of the English tongue upon the death of any man or men. Rather is the argument to be found in the heritage of great principles which they have left to us, embodied in most wonderful and finished form. It would be very easy, did space permit, to quote

passage after passage in which meet all the graces of speech which scholars love, all that strength of argument which commends itself to untutored minds, that expression of patriotic sentiment which finds an echo in every loyal soul. Again and again there rings in my ears that noble cry of Sir James Mackintosh, uttered in 1803,—“We are fallen upon times in which it behooves us to strengthen our spirits by the contemplation of great examples of constancy: Let us seek for them in the annals of our forefathers.” And if we seek, we shall find such examples—find them in the burning words that adorn the pages of British eloquence. If all the famous phrases and passages from those pages were collected and spread before us, we could not but marvel. But in case of that same Sir James Mackintosh, for instance, who even thinks of him as author of the phrase, “the frivolous work of polished idleness”? or of that other and oftener quoted phrase, “a wise and masterly inactivity”?

But I do not forget that Caius Marius has laughed at the men—and rightly, too, who think that they can become brave by simply reading of the brave deeds of their ancestors. That, surely, is not my claim. I am simply seeking to show that for every and all purposes relating to national life, for the re-kindling of patriotic feeling—for finding the statesman’s view of historic events—for getting at the springs and sources of civic actions,—there is no aid so great, no study superior to that of the great civic orators of the English tongue. It may be said indeed,—it will be strange indeed if somebody who reads these pages does not say “Yes, but almost all of those orators were trained classical scholars.” But that is entirely aside from the question. They have not handed down to us their speeches in a dead or foreign tongue. Moreover, neatly as Lord Beaconsfield could turn a classic phrase to suit his purpose, he was no match in simple power to Saxon-bred John Bright, who knows no language but English, yet has studied that in its noblest efforts. To come nearer home: Edward Everett knew more of the classics than Abraham Lincoln; but let no one fear for the perpetuity of Lincoln’s Gettysburg words when compared with Everett’s elaborate oration on Washington.

There is hardly any kind of literature more attractive and important for American youth than those great utterances which have been made by our own political orators. There is not space here to set down in detail the record of their words; and, too, every educated American is supposed to be familiar with them. But I cannot

forbear reference to one man and to one phase of his oratory, because of the mighty educational power which I believe his speeches to possess. Who can that man be but Daniel Webster? And what phase of his oratory but its imaginative quality? For after all, it is just that quality which attracts and educates youthful minds. Take, for instance his famous apostrophe to the Union. Note how the very warp and woof of it is in imagination, and how deftly, and with what parti-colored beauty, the colors of the imagination are interwoven with the strong fabric of the reason. Let a teacher possess himself of that wonderful picture, and hang it upon memory's walls—and how it will quicken patriotic fervor whenever it comes within his vision. He will urge that boy yonder to try and catch the spirit of that rapt strain—assured that if once the lad seizes upon the image presented, he will wear it forever at the very heart of his patriotism. Let us awake, then, to some just appreciation of the exceeding worth of the civic element in our speech and literature. No fields lie beside it which can vie with it in fertility. Poor husbandmen we, if we do not till such soil to the enrichment of ourselves and others!

CULTURE WORTH.

The cumulative character of the argument I am seeking to make, ought clearly to appear in this division of my theme. For although the various kinds of worth of which I have thus far written have, each, a value far from slight, no one of them is comparable in its far-reaching importance to that of culture. Through what an ever-ascending scale its power rises! We are apt to think that the term culture can only be applied to the most exquisite and perfect training of the mental powers,—and, of course, its highest manifestations are seen only on that shining table-land. But herein is found the real worth of the English tongue: that its simplest utterances have in them a power to cultivate and enrich. Let a boy of clear and flexible voice, utter carefully and repeatedly even the sounds of the language and something of culture will awaken within him. Let him conjoin those sounds in words, and find the sources whence such words sprang—and he will add to his culture-stock; and so, step by step, he may go on and up until he stands within the mighty temple of English Literature—the most wonderful and beautiful house ever built by the minds of men. But how strange it is that some men, calling themselves scholars, conceding rare beauty to the literature, yet decry and seek to belittle the language. These forget, if ever

they knew, that the source of our literature is from our language, and are ignorant of the very common truth that the stream cannot rise higher than its source. Surely we need not fear to take our language with our literature, indeed without the former, in what a sorry plight the latter would be. Recall that good story of the would-be critic who saw a stuffed owl in a barber shop, and straight-way fell to berating the taxidermist who could do such an inartistic job,—when lo! in the midst of his talking, down hopped the owl, *alive*. So, while the euphonists, the purists, and all the other “ists,” are arraigning their mother-tongue, down flies our literature from its lofty temple on some “heaven-kissing hill” and with its kindly ministration, informs the mind, blesses life, and refines the whole man. And so the linguistic owl-critics sit blinking at the sun, while other men are joyfully and profitably basking in its beams.

There are other critics who admit that there is culture both in English language and literature, and yet assume to say that the more culture a nation, (or an individual) possesses, the worse off it is. Culture weakens, they say—it saps virility and even vitality; and then, of course, they point to Greece,—a land that once was highly educated and now is no more,—*Ergo*, say they, culture killed her. But we are not of the number who tremble for America from fear of such a parallel. Indeed, it is very doubtful whether such a land as we possess to-day would now be ours, save for the men of culture—graduates of colleges and universities,—who framed the constitution under which we live to-day. And I find in the moral purpose of the best culture of to-day, the fruitage of its present, and the promise of its future worth.

No pen can tell the power for culture which resides in our English tongue. It would not be difficult to show that even man's physical nature may be refined and strengthened thereby—nor to prove that from increased mental and moral stature, there may result a nobler man physical. So subtle and so wide-reaching are the springs of culture in the human mind. Take, for instance, what may be called the music-element in our speech and literature—that mere rhythmic form which sings its way into the mind, and so lodges in the memory some great philosophic truth. English poetry teems with such illustrations of incalculable worth, and even prose has its cadences. It is surprising, also, to think how rich a treasure we have in the best letter writing of our language. The more graceful and delicate touch is, of course, that of woman; but men also, like Horace

Walpole, have revealed to us many a truth, conveyed in such a simple and yet artistic way, that we are enriched ere we know it. An exhaustless mine of wealth is to be found in our histories. There was a time to be sure, when they were merely rude jottings, set down with little or no discrimination. Not so now. That which was worth saving has been kept, and put into such attractive form, so blended with the life and deeds of later days, that in the reading is now a perpetual delight, and an unending source of culture. Out of the mines of history comes also that stock of illustration, comparison, inference, which cultivates the mental forces of him who reads, and helps him beyond expression, if it be his business to educate others. Or, is the culture sought a knowledge of human nature in its manifold shapes and forms? For that what can be compared with the English drama? Roman comedy has some value as representative of by-gone Roman life, and Greek tragedy is superbly intellectual; but in Shakespeare alone is a range of living, practical thought unsurpassed. What phase of life, the perusal of which may be for our enlargement and strengthening in the mental life, hath he left untouched? And pure poetry, entirely outside of the drama, what an exhaustless power to ennoble and cultivate it possesses. Too much slighted and scorned for the real good of the age, but capable of doing wondrous things for man in the realm of his higher and better nature. But I may not longer linger on this fascinating theme, though conscious that I have left a hundred things unsaid, I shall be satisfied however if what I have said may lead others to think of these unsaid things.

CREATIVE WORTH.

It is Lord Foppington in an old English play, who says :—"To mind the inside of a book is to entertain ourself with the forced product of another man's brain. Now I think a man may be much amused with the natural sprouts of his own." Undoubtedly, 'my lord,' he may,—and yet, in most cases he will poorly succeed in amusing others, unless he has drawn upon many sources outside of himself. Literature creates literature; letters multiply. This may truthfully be said, despite the fact that there is much so-called literature which deserves not so good a name. The range of good literature is ever widening; that of great literature widens so slowly as scarcely to be perceptible. How many of the yearly products of the teeming press can be accounted transcendently great—that is immortally so? And

yet, are we of the number who would save out ten or a dozen great books, and make a bonfire of all others? Is it not easy to see that every man who can read the English language would thus meet with an irreparable loss? that each man would lose some book, some thoughts, some words—possibly not pondered by the world at large,—which had been to him an inspiration and delight? I suppose Whittier's "Snow-Bound" is not one of the great books of the world,—I am quite sure it is not in any of the "hundred" lists so common of late; and yet, I know a man who reads it every year with ever-renewed delight, and who would feel an "aching void" if *that* book should burn. And you, reader, whoever you may be, erasing the word Snow-Bound, and putting instead the name of the volume of your choice, are of the same mind as that man. Let us agree, then, to let the good books of the world remain—and simply be chary of adding to their number. The old Biblical proverb has it—"In the multitude of counsellors there is safety"; so, in the multitude of books, instruction and profit. How strange a man would he be thought, who, receiving a varied inheritance of lands and gold, should seek to destroy some part of it because, forsooth, not so valuable as the rest!

The glorious literary inheritance to which we of the present have fallen heir ought, however, to be preserved, chiefly because of its creative power and worth. There can scarcely be named a theme of modern times to which some fore-running book has not given renewed inspiration and power. Take an illustration which relates to our theme—the English tongue. Thirty years ago a scholar of our own land, aglow with enthusiasm for his native language, set about the task of recording the history, power, and enrichment of that tongue. Few and scattered, oftentimes well-nigh inaccessible, were the materials for his work. But the patient scholar gleaned many facts—some from books whose value seemed utterly to have perished—set them in due order, and gave them to the world. How great is the debt of sound, pure English to the work and the books of George P. Marsh. What a creative force they have exercised on younger scholars.

But we are told that there is nothing new under the sun—and so the so-called new in literature is, must be, the old. In that vague sense in which everything that now is, has ever been, that is true—and in no other sense. Are the rude and meagre facts out of which Shakespeare constructed many of his dramas, the same facts, in any true and vital sense, as after they have passed through his wonder-

working brain? See the new light which dawns upon the mind, and floods the soul of John Keats, when for the first time he reads the marvellous English of Chapman's Homer. Be sure that new creations of Keats's pen will attest the worth of the old story. So, too, from various sources, Tennyson takes the stories of certain far-famed women of olden times and puts them forth, new, and in intensified splendor, in his "Dream of Fair Women." But I need not multiply instances, literature is full of them. Every kind of literature has a creative power, for good or ill, of its own. And so long as any special form of literature is in fashion, its power of re-creation will be found to be very great. When the fashion of it passes away, there will still be scholars, here and there, who, in "the still air of delightful studies," will yet catch some lingering fragrance blown in upon them from the old-time fields where once the world walked with delight; and perchance some new creations will come forth out of this communion with the spirit of the past—the past which seems bygone forever.

John Stuart Blackie claims that books are not the primary sources of culture; yet even he concedes them to be practically indispensable. So indeed they are, just so long and so far as they serve to transmit those mighty thoughts which the world, by re-combining, re-shaping, and re-illuminating, makes new.

A word about poetry as a creative force. Matthew Arnold calls it "the crown of literature." Yet so little does our age seem to regard it, that I shall only pause upon it to say, that of all the creative forces of literature, poetry seems to me the greatest. What music, beauty, philosophy, truth, are in it!

"I love the old, melodious lays
Which softly melt the ages through,
The song of Spenser's golden days,
Arcadian Sidney's silvery phrase,
Sprinkling our noon of time with freshest morning dew."

Ah! What intellectual force can better moisten and cool our hot, parched "noon of time," than this very joy-dispensing poetry?

TO CONCLUDE.

If a tithe only of that which I have claimed as the real worth of our English tongue has been proven,—and if, moreover, this wonderful wealth is needed that the best interests of the mental life be subserved; then the question becomes a serious one as to whether

those to whom the education of the rising generation has been so largely entrusted, are doing the full measure of their duty. I will not say, official duty,—but rather, that duty which looks as far and as wisely into the probable future of the young as it can, and so shapes its efforts as to make that future as blest in itself, and as useful to the world as possible. Surely it will be granted that no teacher could wish, or indeed imagine, a loftier ambition. I am, indeed, far from assuming that even the most complete and perfect inculcation of the varied worth of English would always and alone be all-sufficient for the needs of life. But that such teaching lies along the path which leads to preferment, good scholarship, and good citizenship, I do most surely know. For those who have traveled with me through these pages will permit me, I am sure, to say, that they are largely the result of personal observation; and, therefore, I do know whereof I speak. I know, also, that such teaching as the consideration of my theme suggests, is full of difficulties and discouragements. But it is not the province of this paper to discuss the ways in which the varied and storied worth of English may best be acquired. But my advice to boys and girls would be, to *steal* it, if they cannot get it in any other way! I am not without hopes, however, at some time to attempt, in the pages of THE ACADEMY, to answer the all-important “How” question. You remember how the preacher expounded the text, “And without controversy, great is the mystery of godliness.” “Yes, brethren, *without* controversy great *is* the mystery of godliness,—but controversy clears it all up!” Perhaps controversy may do the same blessed work for our theme! I have not cried down the Latin and the Greek,—but I think it is high time to cry up the English. Time for those who teach, to possess themselves of that genuine home-culture which is the privilege of all who speak the English tongue, to the end that they may impart it, in fullest measure, to the rising generation. For unless they so do, the time will come, though it come late, when the children themselves—now greatly in the dark as to the worth of their own mother-tongue—will begin to see that they are being defrauded of their inheritance, and the “Cry of the Children,” in even a more pitiful, yet more potent voice than that of Mrs. Browning, will enter into our ears. Then straightway into life will start a new “Children’s Crusade”; and teachers who are willing then, as Peter Hermits, to engage in that “Holy War” may send their names to the Editor of THE ACADEMY.

*DISCIPLINE IN THE HIGH SCHOOL.**

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Good discipline is universally deemed an indispensable condition of successful teaching. He who cannot govern his pupils, however learned he may be, and however amiable his disposition, works at a sad disadvantage; nor can such a teacher long sustain the burdens laid upon him by weakness of control. Indeed, to be a teacher in any proper sense implies being a ruler as well.

The absence of good discipline is bad for the pupil. It renders the school a less efficient instrument in his intellectual advancement, for under suitable control both the amount learned and the ease of learning are perceptibly increased. Then, too, certain higher lessons of obedience, truthfulness, honesty and duty are seldom learned where government is loose and the individual will is law.

There is abundant reason, therefore, why this topic should have a place in educational discussions, that by interchange of opinion and experience we may clarify each other's thoughts and strengthen one another's hands.

The power of maintaining discipline, like other phases of the teacher's ability, is distributed very unequally among men and women. "There are some," says Mr. Fitch,† "who seem qualified and designed by nature to exercise ascendancy over others. They are born, like Hamlet's father, with

'An eye like Mars to threaten and command,'

or better still, they are naturally endowed with that sweet graciousness and attractiveness of manner which at once win confidence and predispose the hearers to listen and obey. Of such a teacher her pupil may often say, as Richard Steele once said in the finest compliment ever paid to a lady,

'To love her is a liberal education.'"

These favored ones are the objects of much good natured envy among their fellows, but there are many more deeply conscious that

* Read October 27, 1887, at the Rhode Island Institute of Instruction, Providence, R. I.

† Fitch's Lectures on Teaching.

such by nature is not their equipment. If to these the power to rule shall ever come, it will be, as other powers have come, by intelligent use and cultivation of the capability in this direction with which maturity finds them. No one need despair of attaining a reasonable success in discipline, if willing to learn the principles on which it rests, and if energetic enough to persist notwithstanding discouragements.

Are we to regard school discipline as simply a means to an end, or as itself an important end in school life? The former impression seems to prevail, and on excellent authority. Mr. Sully* says:

"The immediate object of school discipline is, indeed, not moral training, at all, but rather the carrying on of the special business of the school, namely, teaching."

There is much to be said in favor of this view of the case. Life is short; in particular, school life is a period crowded with its demands upon the teacher. The exigencies of the class-room are so numerous and imperative that, one may fairly say, the first duty is to see that discipline tends to establish right conditions for teaching. Order should be insisted upon because disorder dissipates attention and prevents healthy intellectual action. Obedience should be secured because disobedience strikes at the roots of authority and enfeebles the teacher's ability to compel study and to secure order. Organization and drill should be introduced so as to use time with economy and to prevent waste of energy. All this is wise and necessary, but it is not the whole of the matter. "These ought ye to have done and not to leave the other undone." No school can long prosper where these ends are not sought, but, on the other hand, no school has done its whole duty to its pupils if nothing more than this has been the outcome of its discipline.

I shall venture, therefore, to take issue with all who claim, as Mr. Sully does, that the chief aim of discipline is the improvement of the conditions of study, instruction and recitation, and to assert that in school discipline there should be held directly and immediately in view the moral training of the individual pupil. I should even go further and say that if the issue arises, as it rarely will, the intellectual work of the school should be subordinated to the training of character. Should any one reply that this aim is too lofty for our plain, work-a-day school life, I must rejoin with Malvolio,

"I think nobly of the soul, and no way approve his opinion."

* Sully's *Teachers' Hand Book of Psychology*.

What has been said is true of the management of schools in general, but is especially applicable to the conduct of high schools, in view of the characteristics of young people of the high school age. If with little children whose world is all without them, who are seldom conscious of the expanding self within, it is sometimes expedient and necessary to take the readiest and speediest means of accomplishing results, there can be little sober reason for haste and rigidity with older boys and girls when more quiet and less hasty measures serve for the present and for the future as well.

“The race is not to the swift, nor the battle to the strong.”

The German Pfisterer has marked off the mental life of children as wisely, perhaps, as the case permits, making of it four periods. The first is infancy, to the end of the first year, in which the bodily life and sense are predominant, and instinct serves for will. Next comes the age of childhood, from the second to the seventh year. Here springs up self-consciousness in the germ, though the outer world is still engrossing. Curiosity appears and grows. Memory and imagination are active; indeed, activity is abundant under the form of play. Respect for authority shows itself and by slow degrees rises to a willing submission to simple moral rules. Feeling is less violent, and is becoming crystalized into permanent disposition. After this follows the period of boyhood and girlhood, from the seventh to about the fourteenth year,—the period of elementary school life. In this, individual peculiarities become more marked. The intellectual processes go on more steadily under the control of a stronger will-power. Hence, there becomes possible the more orderly constructive activity involved in learning and the systematic formation of abstract ideas. Self-control now begins to assert itself. The unfolding of the intellect and the exercise of the will lead to the development of independent judgment, free choice, and self-reliance. Finally this period is characterized by the up-springing of new feelings, the social, intellectual and æsthetic sentiments. The fourth period, that of youth, from the age of fourteen to manhood and womanhood, shows a gradual progress of all these powers of intellect, emotion and volition, intensified and broadened in range by well known conditions of physical change, until there arrives perfect independence and self-reliance in thought, feeling and action.

Now it is in this latter stage of development,—the transition from childhood with its manifold confused beginnings to manhood with

its self-contained strength and action,—that the high school has its pupil. He is not so plastic in nature as once he was, nor is his heart a white page with nothing stamped thereon; but he is capable of untold advancement, and is subject to the molding of a right-hearted, strong-willed teacher in ways that take hold on eternal life. The interests of his future are larger than any mere school necessities can be, and should never in the teacher's planning be assigned an inferior place. His Algebra and Latin will fade, and his knowledge of history be transmuted into comprehension of modern life, but the moral habits and the aspect of soul which he forms in this period will go far to determine his human destiny.

From this it follows that a high school teacher ought to regard the discipline of his pupils, not as a petty question of organization, rules and punishments alone, but mainly as a department of moral training. He will then discern that it cannot rest upon a basis of mere empiricism, or of imitation of some honored instructor, and least of all on one's supposed power to govern. All these will fail, because they have no root in themselves. The proper foundation for discipline is a knowledge of the hearts of children, together with a determination to form within them habits of thinking, feeling and willing, that shall result in good dispositions and good characters.

Our word govern, with its implication of the Latin *gubernare*, brings before us the picture of the master of a vessel, sitting, tiller in hand, guiding his craft over the sea. He must have intelligence enough to know whither he would steer; he must decide that the vessel shall proceed thither; and he must have at his command the power of wind or oar or steam to carry out his choice. So in the government of a school the teacher must combine in symmetrical proportions intelligence, will and power.

As seen by the intelligence of one who accepts my previous statements, the aim of discipline in the high school is to induce in the pupils such dispositions that they can be relied on in school and out of school, and after they leave school, to decide wisely and act rightly. It remains for the teacher definitely to apprehend the steps by which this elevated plane of living can be reached.

Exhaustive treatment of the matter is out of place in this paper, but a few plain details ought to be given.

There are four elements that seem requisite in the development of a sense of duty and in training in self-control.

The first is knowledge. The child must be led to see in each case what he ought to do, and in most cases why he ought to do this. Thus only will he judge correctly of the nature of his actions and be guided by right principles. Cool and unimpassioned conversation, in private and on the occasion of some special necessity for action, is the most effectual means of securing this result. The numerous "cases of discipline" that occur are just the occasions for such work. Every one is an opportunity for moral training, and only by so regarding and so treating them can a teacher find in them any sort of satisfaction. Often under right handling they become turning points in the lives of the disciplined. The mental views of boys and girls and their reasoning are not always of the clearest. Prejudice and passion often make the false seem true and the worse appear the better reason. Yet most of them by skillful presentation of the reality can be led to see more clearly, and to discern beauty where just before they beheld nought but the beast. This done, a long first step has been taken toward right action.

The second element is right motives. The choices of the will are dependent upon the emotional nature. The immediate occasion of each volition in the child is an impulse to act springing from some desire. The character of the desire will determine the character of the act of willing; the intensity of the desire will affect the energy of will exerted. Hence it becomes the teacher's duty so to surround the pupil, while circumstances permit, that right and wise desires may be suggested to his emotional nature, and thus may lead to right and wise exercise of the will. At this point in moral training comes in the good effect of organization upon school management. Careful proportioning of periods of study, recitation and freedom from restraint should be attempted. The charm of novelty should be invoked while regularity and promptness in all appointments should be secured. All that can tempt the eye or the ear astray, all that tends to undue worry and fret, all that discourages and depresses should be excluded; cheerfulness and brightness on face and in manner should be the prevailing garb. Let us, whenever we can, associate pleasurable emotions with right doing, and stimulate the wish to act as duty demands.

Third among the requisites for training in self-control is the opportunity of choice. The will, like the intellect and the emotions, is dependent upon action for its growth. Where the child is allowed little freedom of choice, unless by reason of heredity there is abnor-

mal energy of volition, there will result a weakness of will, an irresolute tendency, which sorely hinders moral advancement. The control of the master over the slave fails to develop in the latter a desirable condition of will. A man of character must have a strong will, as well as one directed aright; and strength of volitional action comes only as strength of muscle comes,—by judicious exercise. Leave, then, more roads than one open to the feet of your pupil, but so stimulate his desires that he may take the right one. Block his path if he unwittingly enters upon a wrong course, and when he has deliberately chosen an evil course compel him to retrace his steps. It is only when his journey tends to harm himself or others that he need know of your control; then his knowledge of it should be distinct and convincing.

The last feature of moral culture I will name is practice continued till it results in habit. Instruction alone, whether formal or incidental, is not sufficient to form or reform character. Example, potent as it is, will avail only when seen or remembered—and not always then. A few right choices occasioned by the mastery of right impulses will not suffice. The exercise of the will must be continuous, without serious interruption, and progressive, from the easy to the more difficult, until by instinct, as we carelessly say, or more properly, by habit the child's choice turns, "as the needle to the pole," to the deliverances of conscience and sound reason. Then, we are accustomed to say, the man is governed by principle. He is not the sport of whims or the victim of passionate tempests, but is master of himself.

" And blest are those
Whose blood and judgment are so well commingled
That they are not a pipe for fortune's finger
To sound what stop she please. Give me that man
That is not passion's slave, and I will wear him
In my heart's core, ay, in my heart of heart."

Having thought out, in some such way as this, the processes of moral culture, the next step, obviously, is to study the children and to ascertain the means at hand for occasioning in them this kind of growth.

"The proper study of mankind is man," sang the poet of Twickenham. In an especial sense the proper study of the teacher is the young mind he hopes to lead,—and this alike whether the results he aims at be intellectual or moral. A part of this study can best be

done in silence and without suspicion of the fact arising in the thoughts of the subject. A part must come by question and answer; but self-conscious answers may be misleading. The more one knows of the home and its tendencies, of the play and amusements, the more he mingles with the boys and girls in school and out, the more perfectly can he learn their real selves. Then can he determine both where to begin and what is the line of least resistance in moral effort. Some, he will find, have already learned to tell the truth, but are not averse to acting a lie or leaving a falsehood implied. Some will be honest in all important matters, but will cheat about their lessons. Most have learned to be industrious in what they like, but will neglect distasteful work. All are willing to love their friends; few can sympathize with rivals or be generous towards opponents. Many are obedient except when in anger, but have feeble self-control under provocation. In all there will be found traits worthy of praise; in all, too, faults that will excite your contempt or arouse your pity, according as you contemplate the pupil. If you compare him with your ideal you may have little patience with him; but if you are blest with a good memory and compare him with yourself at his age, you may find more cause for pity than contempt, and end by hoping instead of despairing about his future. In this work "Put yourself in his place" is an excellent motto. Not a few troubles between teachers and pupils arise from unwillingness or inability to look at the mooted question from all points of view.

In passing, it may be said that this study of young lives is the most delightful phase of school work. Grey hair may sit upon our temples, or our foreheads may slyly creep upward and over to our crowns, but he whose heart is kept fresh by contact with the hearts of boys and girls can never grow old.

Assuming now that our pilot has used his intelligence to good purpose, and knows his course, let us ask what power he has to drive his vessel whither he will?

It is obvious that nothing of value can be done by a teacher whose authority is not respected. Moreover, this authority must be recognized almost instinctively by the pupils; in lieu of this no assertion or parade of it will seriously affect the will of the child. Here, I regret to say, an element foreign to the teacher sometimes comes in to spoil and mar his most faithful work. How completely a school board can sustain or overthrow the authority of a school master! Some who hold responsibility, I fear, are far too careless in the use

of it, and by easy acquiescence in the desire of unwise parents undermine more than they know the moral usefulness of teachers.

But a teacher must have more than the known support of his committee. His power must in the main reside in his own character and attainments. Half the battle lies in a definite judgment of what the children really need. Much of the remainder rests on a determination to apply the remedy. He must be decided, not "a reed shaken by the wind;" he must be just, not unduly influenced by his preferences or aversions. Even the appearance of favoritism should be sedulously avoided. He must devise expedients and never exhaust his store, for repetition dulls the edge of the best devices. Patience must be provided in abundant measure; it will all be needed; yet scarcely more than the Great Teacher must exercise in our own moral training. The trials and vexations of school life are numerous and exhausting; therefore we must keep a sharp watch on the temper, and rule in cool blood even though the pulse be at fever heat. Ill temper always mean injustice, for anger is indeed, as Cicero says, short-lived insanity. Yet there is a righteous displeasure with evil which heightens and intensifies in the beholder an adequate conception of the nature of the offense. Scolding, sneering and sarcasm produce immediate results but jeopardize genuine progress in morality; they are edged tools, and as often as not cut the hands of the users. Punishments must at times be employed, but let them be the mildest that will prove remedial, and carefully note the effect of each application.

In the high school period simple persuasion is in right hands a wonderful means of moral power. When side by side with a man or woman whom he knows to be good, and whom he finds to be just and determined in action while tender and considerate toward his feelings, the roughest boy or the most frivolous girl is capable of sensible reasoning and will usually respond to a genuine effort for his improvement. While "preaching" to the mass does little good, personal effort seldom fails of success for the time. Each such victory should be followed up by encouragement until the habit of right action is established.

And now our pilot knows the path he should pursue across the deep, he has in the freshening breeze the power to urge his bark to her harbor; why lies she still at anchor, or drives here and there with aimless motion? Alas! because the helmsman does not really care to reach his destination. He is too busy looking over the cargo

and stowing it closer in the hold, or he would rather take his ease where the sky is mild and zephyrs cool his brow. How shall we move his will and urge him to the pressing duty?

Just here, fellow teachers, lies the purpose of the present words. O that some power would move our wills to rise above the pettiness of our registers and daily marks, our examinations and our oral tests, that we may shape these springing lives for the future that awaits them. For this, thank God, is our real work, the rest but the surrounding and enclosing pale; and a glorious work it is. Listen while it is pictured for us in the words of that canny Scot whose "Day Dreams" have been to some of us so helpful and uplifting.

"O brother schoolmaster, remember evermore the exceeding dignity of our calling. It is not the holiest of all callings; but it runs near and parallel to the holiest. The lawyer's wits are sharpened, and his moral sense not seldom blunted, by a life-long familiarity with ignorance, chicanery and crime. The physician, in the exercise of a more beneficent craft, is saddened continually by the spectacle of human weakness and human pain. We have usually to deal with fresh, unpolluted natures. A noble calling, but a perilous. We are dressers in a moral and mental vineyard. We are undershepherds of the Lord's little ones; and our business it is to lead them into green pastures, by the sides of refreshing streams. Let us into our linguistic lessons introduce cunningly and imperceptibly all kinds of amusing stories; stories of the real kings of earth, that have reigned in secret, crownless and unsceptred, leaving the vain show of power to gilded toy-kings and make-believe statesmen; of the Angels that have walked the earth in the guise of holy men and holier women; of the Seraph-singers whose music will be echoing for ever; of the Cherubim of power, that with the mighty wind of conviction and enthusiasm have winnowed the air of pestilence and superstition.

"Yes, friend, throw a higher poetry than all this into your linguistic work; the poetry of pure and noble motive. Then in the coming days, when you are fast asleep under the green grass, they will not speak lightly of you over their fruit and wine, mimicking your accent and retailing dull, insipid boy-pleasantries. Enlightened by the experience of fatherhood, they will see with a clear remembrance your firmness in dealing with their moral faults, your patience in dealing with their intellectual weakness. And calling to mind their old school-room, they will think: "Ah! it was good for us to be there. For unknown to us, were made therein three tabernacles, one for us,

and one for our schoolmaster, and one for him that is the Friend of all children, and the Master of all schoolmasters.

"Ah! believe me, brother mine, where two or three children are met together, unless he who is the Spirit of gentleness be in the midst of them, then our Latin is but sounding brass, and our Greek a tinkling cymbal."

*THE SECOND ANNUAL MEETING OF THE NEW
ENGLAND ASSOCIATION OF COLLEGES AND
PREPARATORY SCHOOLS.*

The second annual meeting of the New England Association of Colleges and Preparatory Schools was held at the College of Liberal Arts (Boston University), on Friday and Saturday, October 28 and 29, 1887.

The meeting was called to order by the President, Professor Charles E. Fay, at 2:45 P. M. Robert P. Keep, of Norwich, Conn., was appointed secretary for the meeting, in the absence of the secretary and treasurer, Miss Helen Magill, of Evelyn College, Princeton, N. J. Minutes of the first annual meeting and of the special meeting of January, 1887, were read and approved.

The President, in a brief address, expressed his sense of the honor conferred upon him and the importance of the duty imposed. He gave some account of the spirit in which himself and the Executive Committee had sought to accomplish the tasks laid upon them, viz.: the revision of the Constitution and the arrangement of the programme of the present meeting.

At his suggestion it was decided to appoint a committee on nominations before proceeding to the paper of the afternoon. The appointment of the committee was entrusted to the chair, and the committee was filled as follows: President C. W. Eliot, Professor A. H. Buck, Rev. William Gallagher. They were requested to report the next morning.

A list of candidates for membership of the Association was next presented with the recommendation of the Executive Committee, and the method of balloting by institutions was explained, and the representatives of the various institutions present were requested to deposit ballots during the afternoon session.

The Association then proceeded to listen to the paper of Professor G. T. Ladd, on the *Place of the American Fitting School*.^{*} Professor Ladd began to read at 3.15 P. M., and concluded his paper at 4:30 P. M. A recess of five minutes was then taken for social intercourse, and the discussion was opened by Principal Walter Q. Scott, of Phillips Academy, Exeter.

Dr. Scott emphasized (1) the difficulty of getting hold of boys at the beginning of an extended course of preparatory study, say of six years, such as Professor Ladd had advocated as desirable. (2) He spoke of the tendency of boys to get away from the preparatory school, and of the willingness of many colleges to receive them as freshmen a year at least before their school course was completed. (3) He regarded the expansion of the scientific course of the Phillips Exeter Academy as a step toward the bifurcation of studies recommended by Professor Ladd.

The discussion was continued by President Warren, of Boston University, who, after pleasant words of welcome of the Association to the rooms of Boston University, and after expressing his appreciation of the paper of Professor Ladd, went on to say that one of the services which he expected the Association would render, would be to inform the younger men in the College faculties what were the real needs and difficulties, and what the problems of the preparatory schools. Formerly professors were generally men who had served an apprenticeship in teaching in preparatory schools. At present, with the increased desire for specialists, this was much less generally the case.

Mr. Tetlow followed. He expressed the hope that different teachers might express themselves as to the effect of the recent various requisitions for admission to Harvard College. To him, personally, from the fact that his school was a girls' school, the embarrassment had been very slight. He had learned from Dr. Merrill, that after arrangements had been made in the Boston Latin School, by which German could be substituted for Greek, only one had taken advantage of these arrangements. Mr. Tetlow's own apprehensions, he wished to say, had been much relieved.

President Eliot followed. He expressed his pleasure in the signs of the development of different kinds of schools aiming to do special work. He would accept, in the main, Professor Ladd's definition of

^{*} It is said that this paper somewhat condensed is to appear in *Scribner's Magazine*.

what should be the aim in secondary education, viz.: "to pursue thoroughly and continuously a few valuable subjects." He would specify four subjects: History, Language, Mathematics, Science. He criticised the designation Fitting-schools as implying that the work done in the schools was not of independent importance. The schools should not accept a name which tended to narrow the scope of their action.

Professor Buck followed President Eliot, and he indulged in some humorous reference to what he regarded as President Eliot's recantation of certain previously expressed (at the last January meeting) ideas as to the capacity of the American boy. Professor Buck said that he had long made this individual the object of his careful study, and he went on to give an interesting characterization of the conditions under which his cousin, the German boy, pursues his education. "The German boy is not spoiled in childhood. He is held to good habits and good manners. The grip, once taken, is never relaxed. The Germans do not start very early, but beginning at six they give the German boy at nine a discipline entirely incomparable with anything that can be found in America." Professor Buck gave statistics illustrating the liberal scale on which the State is willing to spend for education.

Mr. Collar wished to *recant* certain fears which he had expressed last January. He had then felt that the American school-boy was taxed well nigh to the limit of his powers. He had, however, found it possible to get from his older boys during the last year, a considerable amount of voluntary work of good quality on such subjects as Latin composition, advanced mathematics, advanced French, Physics. Mr. Collar remarked that we may have been making a mistake in supposing that Greek and Latin must always be written with a hyphen. Excellent work might be done in one of these languages alone with little of the other.

The discussion was closed by President Pepper of Colby University, Waterville, Maine, who spoke of the impossibility of insisting upon advanced acquisitions among candidates who presented themselves to some of the smaller colleges.

At this point the ballots which had been deposited by the delegates of the various institutions represented were counted and the following persons were found to have been elected :

Ellen M. Barr, Principal of Private School for Girls, Boston.

Henry A. Coit, Principal of St. Paul's School, Concord, N. H.

Edward G. Coy, Teacher in the Phillips Academy, Andover, Mass.
Timothy Dwight, President of Yale University, New Haven, Conn.
Frederick T. Farnsworth, Principal of the Bristol Academy, Taunton, Mass.
Joshua Kendall, Principal of Private School for Boys, Cambridge, Mass.
George T. Ladd, Professor in Yale University, New Haven, Conn.
George H. Palmer, Professor in Harvard University, Cambridge, Mass.
Charles W. Parmenter, Principal of the High School, Waltham, Mass.
Tracy Peck, Professor in Yale University, New Haven, Conn.
William C. Poland, Professor in Brown University, Providence, R. I.
Thomas D. Seymour, Professor in Yale University, New Haven, Conn.
William R. Shipman, Professor in Tufts College, College Hill, Mass.
Clement L. Smith, Professor in Harvard University, Cambridge, Mass.
Samuel Thurber, Master in Girls' High School, Boston, Mass.
John M. Van Vleck, Professor (Acting President) in Wesleyan University,
Middletown, Conn.
Carla Wenckebach, Professor in Wellesley College, Wellesley, Mass.
Caleb T. Winchester, Professor in Wesleyan University, Middletown, Conn.

The association adjourned at 5:45 to meet again Saturday morning at 9 o'clock.

SATURDAY, OCT. 29, 1887.

The meeting was called to order at 9:30. Brief minutes of the last meeting were read and accepted. The report of the Treasurer, showing a balance of \$22.00 in the Treasury was read and approved.

The Report of the committee appointed to confer with the Commission of New England Colleges on Admission Examinations was presented by its chairman, Mr. F. A. Hill, of Cambridge, Mass. The committee expressed in their report their sense of the courtesy and consideration which had been shown them by the college committee; they remarked in conclusion "that it is most important that any request which should be laid before the colleges on the part of the Preparatory Schools should first be carefully weighed in all its bearings by those who suggest it."

The Report of the Committee was accepted.

The next business was action upon the revision of the Constitution in the form proposed by the executive committee.

The Constitution was adopted after considerable discussion article by article.

On motion of Mr. Bradbury it was voted that the Executive Committee have authority to make any verbal changes in the Constitution which may seem to them expedient.

The following is the Constitution thus adopted and revised by the Executive Committee :

ARTICLE I. NAME AND OBJECT.

This organization shall be entitled "The New England Association of Colleges and Preparatory Schools."

Its object shall be the advancement of the cause of liberal education by the promotion of interests common to colleges and preparatory schools.

ARTICLE II. MEMBERSHIP.

Presidents, professors, and other teachers in New England colleges, and the heads and other teachers of New England schools that prepare pupils for college shall be eligible to membership. Such persons may become members on nomination by the Executive Committee, and election at any regular meeting.

ARTICLE III. OFFICERS.

The officers shall be a President, two Vice-Presidents, and a Secretary, and these with five others shall constitute the Executive Committee. The duties of these officers shall be such as usually appertain to the several offices. The Secretary shall also act as Treasurer.

The Executive Committee shall have power to assess members to provide for the expenses of the Association.*

These officers shall be chosen at the annual meeting and shall hold office for one year, or until their successors have accepted office. A plurality shall be sufficient for election.

ARTICLE IV. MEETINGS.

There shall be an annual meeting in the month of October. Other meetings may be called at any time by the President or by the Executive Committee.

At all meetings the voting shall be by institutions when three members so request, and in such case each institution shall have but one vote.

The representatives of seven institutions shall constitute a quorum for the transaction of business; a less number may adjourn to a particular day.

ARTICLE V. AMENDMENTS.

This constitution may be amended by a two-thirds vote at any regular meeting, previous notice having been given to all members of the Association.

STANDING RULE.

Each member of the Association may invite two persons to be present at any meeting.

The Association then listened to a paper by Mr. Samuel Thurber, entitled "Aims and Methods in Modern Language Teaching," † of which the following is an abstract.

*The annual assessment is one dollar.

† This paper appeared in full in *THE ACADEMY* for December, 1887.

I would offer the thesis, that the elements of language knowledge and of language study are four, namely, hearing and speaking, reading and writing ; and that these four elements are bound together by a principle of unity so closely that, while they may be separated in thought, and, as physical acts, are not mingled in time, they are not separated in nature, and must not be in a pedagogy that aims at attainment rather than at formal culture. First is the spoken word, caught by the ear of the pupil and reproduced by his organs ; second is the form of the word to his eye,—its spelling.

An applicant for admission to college should be able to speak French or German ; to speak within a limited range, of course, but with confidence, seriousness and dignity.

A college examination in French or German should include such an exercise as the following. The candidates should listen to a short discourse in the language in question, and then should write in the same language an abstract of the content of this discourse.

The college professor of French should receive students competent to read and understand the language very well, and to write and speak it, if not well, at least confidently, and without any sense that they are doing a ludicrous thing when they do their best. Then this professor can go on with really advanced matters concerning the history of the language, the form and significance of its literature at its various stages, and whatever else belongs to French scholarship.

The attempt to isolate the formal discipline from the useful results and to give all the honor to the former brings it to pass that the studies which least issue in acquired skill, ready for use, come to be deemed the most abounding in disciplinary value, and then to be esteemed, not merely for their disciplinary value, but actually for their lack of utility. This is a wholly deplorable twist that has come into educational theorizing.

There is as much linguistic discipline in modern language study as a youth can profit by.

It is possible to learn French and German so as to read them in silence with ease, because they can be vocalized, and the familiarity of the ear co-operates with the familiarity of the eye, making that perfect and natural whole of lingual habitude, which pedagogy now recognizes as the indispensable condition of learning a language.

The youth who has been kept persistently at French or German during the four years from his 14th or 15th to his 18th or 19th year, and who has been taught according to the plainest principles of

pedagogy applicable when acquisition, rather than discipline, is the end in view, should be able to read the language, to hear it unfaillingly, and to write and speak it well, within his range. And such attainment the colleges can have in their applicants by the simple act of insisting on having it, and by agreeing to consider as unripe, and therefore inadmissible, all who do not possess the duly announced qualifications.

A secondary teacher has a right to consider his responsibility as ended when a college has examined and admitted his boys. The college faculty that has held an examination and admitted a freshman class through its ordeal has no right thereafter, on finding defective preparation, to refer it, as a matter of complaint, to the preparatory school. An examination is a receipt in full of all demands. If it is less than this, what is it?

The Paper ended at 11:25. A recess was then taken until 11:40, when the discussion was opened by Professor R. A. Rice, of Williams college. Professor Rice held that no one is fitted to teach a modern language who can not speak the language. He would even go further and say that in order to be really competent to teach one modern language the teacher should have knowledge of two other modern languages. (The three languages thus referred to were French, German and Italian). Professor Rice does not believe that the philology of a modern language should be a chief object of attention. But, as regards the employment of the so-called *natural method*, it has repeatedly proved true in his experience that a student who had acquired before coming to college some speaking knowledge of French or German fell conspicuously behind those who had been instructed in a different way (*i. e.* on the basis of a firm grammatical drill). It is much to be desired that a plain, exact account of the experience of modern-language teachers should be given. Professor Rice's own experience was not with classes in the elements, the place where experience was most valuable. An important practical difficulty springs from the difference in the requirements of our colleges. Some require no previous study of modern languages. Even where there is a requirement it is often met by a mere cram which leaves the student in little better condition for modern language study than if he had not made a beginning at all. There is much diversity of aim among college students in taking up modern languages. Some desire to speak and care little for the literature, a larger portion, perhaps two-thirds, value a reading-knowledge (the

power to read) the language but care nothing for power to speak it. Another unfortunate fact is that students are not held steadily to one language for a sufficient time to enable them to accomplish any thing excellent in it. Professor Rice made it his object in his own teaching with advanced classes constantly to encourage the student to dispense as far as possible with dictionary and grammar. Professor Rice closed his remarks at 12:10. It was moved and carried that remarks in the discussion following should be limited to five minutes for each person.

Dr. Van Daell, Director of modern language instruction in the Boston schools, showed very interestingly how little need there was that conversation, carried on according to the natural method, should deal with trivial subjects. He had found it easy after some preliminary conversation upon the parts of the human body to pass to a conversation on the geography of France. With an advanced class he had made a resumé of the history of Europe since 1848 the basis of conversation. Grammar is required just as truly by one who uses the natural method as it was formerly. It is studied in a different way. That is the difference.

Dr. VanDaell's remarks were listened to with great interest and were greatly valued.

The discussion was continued by Professor Richardson of Amherst, Mr. Tetlow, of Boston, Mr. Collar, of Roxbury, Mlle Sée, Professor of French at Wellesley, and was closed by Professor Fay, who said that though he had taught modern languages for seventeen years, the present discussion had shown him how much he had still to learn.

The nominating committee, through its chairman, President Eliot, reported the following list of officers for the ensuing year:—

President—Professor Charles E. Fay.

Vice-Presidents—Mr. William C. Collar, President Timothy Dwight.

Secretary and Treasurer—Mr. Ray Greene Huling.

Executive Committee—Mr. John Tetlow, Professor Helen A. Shafer, Mr. E. H. Cutler, Dr. Robert P. Keep, Professor William Carey Poland.

These officers were unanimously elected, as was also the following committee to confer in behalf of the Association with the Commission of Colleges in New England on Admission Examinations: Mr. Frank A. Hill, Dr. C. F. P. Bancroft and Mr. George L. Fox.

The Association adjourned at 12:45 P. M.

ROBERT P. KEEP, Acting Secretary.

The following is the list of members of the Association :

- Cecil F. P. Bancroft, Ph. D., Principal of Phillips Academy, Andover, Mass.
 John Wesley Beach, D. D., LL. D., Ex-President of Wesleyan University, Middletown, Ct.
 Ellen M. Barr, Principal of Private School for Girls, Boston, Mass.
 Samuel C. Bartlett, D. D., LL. D., President of Dartmouth College, Hanover, N. H.
 William F. Bradbury, A. M., Head Master of the Latin School, Cambridge, Mass.
 Ezra Brainerd, A. M., President of Middlebury College, Middlebury, Vt.
 Augustus H. Buck, A. M., Professor of Greek and German in Boston University, Boston, Mass.
 Matthew H. Buckham, D. D., President of the University of Vermont, Burlington, Vt.
 Bessie T. Capen, Principal of the Mary A. Burnham Classical School for Girls, Northampton, Mass.
 Elmer H. Capen, D. D., President of Tufts College, College Hill, Mass.
 Franklin Carter, Ph. D., LL. D., President of Williams College, Williamstown, Mass.
 Oren B. Cheney, D. D., President of Bates College, Lewiston, Me.
 Henry A. Coit, D. D., Principal of St. Paul's School, Concord, N. H.
 William C. Collar, A. M., Head Master of the Roxbury Latin School, Roxbury, Mass.
 Edward G. Coy, A. M., Professor of Greek in Phillips Academy, Andover, Mass.
 Thomas W. T. Curtis, A. M., Teacher in the Hillhouse High School, New Haven, Conn.
 Edward H. Cutler, A. M., Principal of Preparatory School for Boys, Newton, Mass.
 M. Grant Daniell, A. M., Principal of Chauncy Hall School, Boston, Mass.
 Timothy Dwight, D. D., LL. D., President of Yale University, New Haven, Conn.
 Julia A. Eastman, Principal of Dana Hall, Wellesley, Mass.
 Charles W. Eliot, LL. D., President of Harvard University, Cambridge, Mass.
 William Everett, Ph. D., Master of Adams Academy, Quincy, Mass.
 Frederick T. Farnsworth, A. M., Principal of Bristol Academy, Taunton, Mass.
 Charles E. Fay, A. M., Professor of Modern Languages in Tufts College, College Hill, Mass.
 George L. Fox, A. M., Master of the Hopkins Grammar School, New Haven, Conn.
 William Gallagher, A. M., Principal of Williston Seminary, Easthampton, Mass.
 Charles B. Goff, A. M., Principal of English and Classical School, Prov., R. I.
 Joseph Hall, A. M., Principal of the High School, Hartford, Conn.
 Frank A. Hill, A. M., Head Master of the English High School, Cambridge, Mass.
 Dwight Holbrook, A. M., Principal of the Morgan School, Clinton, Conn.
 John P. Hopkinson, A. M., Principal of Private Classic School, Boston, Mass.
 Ray Greene Huling, A. M., Principal of the High School, New Bedford, Mass.
 William DeWitt Hyde, D. D., President of Bowdoin College, Brunswick, Me.
 Robert P. Keep, Ph. D., Principal of the Free Academy, Norwich, Conn.
 Joshua Kendall, A. M., Principal of Private School for Boys, Cambridge, Mass.
 George T. Ladd, D. D., Professor of Mental and Moral Philosophy in Yale University, New Haven, Conn.

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- Merrick Lyon, LL. D., Principal of the University Grammar School,
Providence, R. I.
- Helen Magill, Ph. D., Professor of Ancient Languages and History in
Evelyn College, Princetown, N. J.
- Richard H. Mather, D. D., Professor of Greek in Amherst College,
Amherst, Mass.
- Moses Merrill, Ph. D., Head Master of the Public Latin School, Boston, Mass.
- George W. C. Noble, A. M., Principal of Private Classical School, Boston, Mass.
- Alice E. Freeman Palmer, Ph. D., L. H. D., Ex-President of Wellesley
College, Cambridge, Mass.
- George H. Palmer, A. M., Professor of Philosophy in Harvard University,
Cambridge, Mass.
- Charles W. Parmenter, A. M., Principal of the High School, Waltham, Mass.
- Tracy Peck, A. M., Professor of Latin in Yale University, New Haven, Conn.
- William T. Peck, A. M., Principal of Classical Department in the High
School, Providence, R. I.
- George D. B. Pepper, D. D., LL. D., President of Colby University,
Waterville, Me.
- William Carey Poland, A. M., Assistant Professor of Latin and Greek in
Brown University, Providence, R. I.
- Noah Porter, D. D., LL. D., Ex-President, Professor of Moral Philosophy
and Metaphysics in Yale University, New Haven, Conn.
- Silas E. Quimby, A. M., Ex-Principal of N. H. Conference Seminary,
Whitefield, N. H.
- Ezekiel G. Robinson, D. D., LL. D., President of Brown University,
Providence, R. I.
- Alfred S. Roe, A. M., Principal of the High School, Worcester, Mass.
- Truman H. Safford, Ph. D., Professor of Astronomy in Williams College,
Williamstown, Mass.
- Joseph H. Sawyer, A. M., Instructor in Mental Science and English Literature in Williston Seminary,
Easthampton, Mass.
- Walter Quincy Scott, D. D., Principal of Phillips Academy, Exeter, N. H.
- Julius H. Seelye, D. D., LL. D., President of Amherst College, Amherst, Mass.
- L. Clark Seelye, D. D., President of Smith College, Northampton, Mass.
- Jotham B. Sewall, A. M., Principal of Thayer Academy, South Braintree, Mass.
- Thomas D. Seymour, A. M., Professor of Greek in Yale University,
New Haven, Conn.
- Helen A. Shafer, A. M., Acting President and Professor of Mathematics in
Wellesley College, Wellesley, Mass.
- William R. Shipman, D. D., Professor of Rhetoric, Logic, and English
Literature in Tufts College, College Hill, Mass.
- Clement L. Smith, A. M., Dean and Professor of Latin in Harvard University,
Cambridge, Mass.
- George Williamson Smith, D. D., LL. D., President of Trinity College,
Hartford, Conn.
- Jonathan Y. Stanton, A. M., Professor of Greek and Latin in Bates College,
Lewiston, Me.

- George M. Steele, D. D., LL. D., Principal of Wesleyan Academy,
Wilbraham, Mass.
- John Tetlow, A. M., Head Master of the Girls' High and Latin Schools,
Boston, Mass.
- Samuel Thurber, A. M., Master in the Girls' High School, Boston, Mass.
- Frederick W. Tilton, A. M., Master of the Rogers High School, Newport, R. I.
- John M. VanVleck, LL. D., Acting President and Professor of Mathematics
in Wesleyan University, Middletown, Conn.
- William F. Warren, D. D., LL. D., President of Boston University,
Boston, Mass.
- Carla Wenckebach, Professor of German in Wellesley College, Wellesley, Mass.
- Horace M. Willard, A. M., Principal of Vermont Academy, Saxton's River, Vt.
- Caleb T. Winchester, A. M., Professor of Rhetoric and English Literature
in Wesleyan University, Middletown, Conn.

COMMUNICATIONS.

ON BEGINNING GREEK.

IN THE ACADEMY for March, 1887, Mr. Williams, of Cook Academy, advocated the use of the *Anabasis* as a first Greek reader. In my own experience of six years in Bowdoin College preparatory schools, I had occasion to start five classes in Greek, all of which began with the *Anabasis*; and in every case we gained time and gave thorough preparation. I have, however, found one difficulty. My classes disappointed me after about a year by a sudden collapse in the grammar. Sometimes it was in paradigms, sometimes in syntax, sometimes in euphonic changes; but about the time they reached the donkey story their wits went wool-gathering, and I was forced to call a halt and rebuild my grammatical fences somewhere. Half a dozen of my acquaintances have confessed the same difficulty.

This year, having a class to begin Greek, I kept an accurate record of every word assigned to the class; that I might guard against one-sided instruction, and with the hope of having some details of interest to those with similar troubles. The following may give some idea of the method used:—

The first week, the class learned the alphabet and the first and second declensions, omitting all contract and other special forms, and had considerable practice in pronunciation. The second week, they

began to translate Anab. I., 1. with English into Greek founded on the text, and grammar lessons on verbs. Memoranda were given to the class, specifying everything to be learned; *e. g.* the pres. ind. act. of every verb, together with its voice, mode, and tense; also hints to other hard words. As the class had studied Latin, they recognized adjectives and pronouns of the first and second declensions, and of the six nouns of the third declension on the first page, they found five without aid. After $\lambdaύω$ was mastered, I gave hints to the harder verbs only, referring the class to the grammar constantly for every point likely to cause trouble. Verbs we had galore, postponing all things else to their conquest. Then came nouns and adjectives of the third declension. The class wrote Greek every day. To sum up, eleven weeks work enabled the class to read the first six pages of the Anabasis, and in Goodwin's Grammar to cover thoroughly all the coarse print and all the paradigms except participles, pronouns, and contract verbs, as far as section 115. Besides this, every question on the ground covered in Ferguson's admirable little "Questions on Xenophon," was answered; about a hundred sentences were written in Greek; and three lessons in Jones' Greek Composition were taken for dessert.

In the winter, a similar course was followed, the hints on verbs being gradually decreased, until for the last third of the term they were dropped altogether. We read six chapters very carefully, giving three weeks for reviews. The grammar was reviewed from the beginning, filling in omissions as far as verbs in μ . In syntax, nothing was learned which the class had had in Latin or English, saving time in which we disposed of every final and conditional clause we met, learned the force of every particle, and kept up Jones and Ferguson.

And the class? Well the bright girl looked up one day at the close of a recitation on the trial of Orontes, and asked, "Mr. Black, why couldn't we have begun Latin this way? It would have saved us so much time; and then, we could have been reading a regular story, too."

We shall finish Book I., and read two chapters of Book II., with half of Jones and all of Ferguson, in the remainder of the year. Next November, Regents' examination, and then Homer. Every day's work has been to the class a visible step toward college, to be taken on the run. And thanks to Ferguson and my record, I do not fear the usual "slump" on the second book.

The main difficulty in doing without a reader is that the teacher must originate his own course in the grammar. He cannot follow the logical (?) order of the readers because the *Anabasis* is not built that way, but persists in introducing all sorts of irregularities at the very outset. There are, then, about two courses open. He may begin at *Anab.* 1, 2, 3, and with an occasional lesson on verbs may take the grammar nearly as it comes, reading the second chapter in the first term. Or he may begin with Darius, give his class a hint at the first two declensions, and plunge at once into the great struggle with verbs which every pupil must face sometime. I have tried both ways, and vastly prefer the latter. Mr. Williams and I differ on one point. I think it unwise to take scattered paradigms from verbs in ω , to fit the irregular forms found in the first chapter. My classes lose the perspective of relative importance among verbs by such a course; and it is important that they know at the earliest possible moment, a whole verb of the regular sort around which to group their later study. I prefer to tell my pupils outright what they need know to about the first dozen or so crooked verbs, till $\lambdaύω$, $λείπω$ and $φαίνω$ have had a chance. I would like to hear through INTERCHANGE from some of the teachers who have cut out their own work in Greek elements, for comparison of experience.

CHARLES A. BLACK.

Schuylerville, N. Y.

EATON, OHIO, Feb 6, 1888.

Editor of THE ACADEMY :

The proposition to establish an "Exchange Column" for teachers of science has attracted my attention. We here in our schools have found "*The Swiss Cross*" a valuable aid in this direction, and are anxious for more opportunities of the same kind with this advantage, that the exchanges shall be conducted by or under the supervision of *teachers*. Bad exchanges are apt to result where total lack of scientific knowledge is possible.

A. M. MILLER, Principal High School,
Eaton, Ohio.

BOOKS RECEIVED.

A Memoir of Ralph Waldo Emerson, by James Elliot Cabot. In two volumes, pp. 809. Boston and New York: Houghton, Mifflin & Co. The Riverside Press, Cambridge. 1887.

In external appearance and mechanical make-up, these volumes are not surpassed by anything we happen to have seen from the American press. Simply as books to hold in your hand and read, or to look at on a book-shelf, they satisfy every reasonable desire.

The word 'memoir' seems almost too modest, and no one would find fault if 'biography' had been put in its place, so complete is the view given of Emerson's life and work. There is no lack of scope or of details. As to the general plan, the author has chosen a middle course between the old-fashioned, full-length biography and the modern autobiographical type of personal history, made up, like those of Carlyle and George Eliot, almost entirely of journals and letters. We have here in satisfactory abundance Emerson's own testimonies concerning himself, in every period of his life, together with a large number of reminiscences and criticisms from his contemporaries, including such well-known names as Holmes, Hawthorne, Henry James, Dr. Hedge, Miss Martineau, Geo. B. Emerson, Frothingham, Dr. Furness, and many others. At the same time Mr. Cabot has not refrained from making needful explanations, comments and summaries, or from expressing his own opinions where these seemed to be called for. We thank him for this, and there is not a word too much. He comes neither to bury Cæsar nor to praise him. He manifests no anxiety to defend Mr. Emerson and makes no attempt to fix his "place" in the world of thought or letters. He faithfully carries out his purpose as expressed briefly in the preface,

"to offer to the readers and friends of Emerson some further illustrations, some details of his outward and inward history that may fill out and define more closely the image of him they already have; rather than to attempt a picture which should make him known to strangers, or set him forth in due relation to his surroundings or to the world at large."

Throughout the work there is a presumption of knowledge, intelligence and sympathy on the part of the reader, and no effort is traceable to substitute for these the views or feelings of the biographer. The style is clear and scholarly, without a flourish of rhetoric. The only blush of eloquence that we remember is the following, written in connection with the statement that not only was there an increased sale of Emerson's books in his later years, but the effect he produced was greater than could be accounted for by his writings:

"What gave Emerson his position among those who influence thought was not so much what he said, or how he said it, as what made him say it,—the open vision of things spiritual across the disfigurements and contradictions of the actual: this shone from him, unmistakable as the sunlight, and now, when his time of production was past, more and more widely, as the glow of the winter sky widens after the sun has set." (p. 627.)

The first chapter introduces us at once to the Puritan atmosphere in which Emerson was born and reared. On May 25th, 1803, his father, the minister of the First Church (Unitarian), Boston, makes the following entry in his diary:—

"Mr. Puffer preached his Election Sermon to great acceptance. This day also, whilst I was at dinner at Governor Strong's, my son Ralph Waldo was born. Mrs. E. well. Club at Mr. Adams'." (p. 27.)

There was very little about Emerson, boy or man, that was dramatic or picturesque. He was a slender, studious child, with no spirit of sport or adventure in him—born for the Sunday-school, one would say.

"Want of 'that part of education which is conducted in the nursery, and the play ground, in fights and frolics, in business and politics,'—leaving him without the help of the free-masonries which these things establish,—no doubt exaggerated the idealist's tendency to fence himself off from contact with men, and made it an effort for him in after-life to meet them on common terms in every-day intercourse." (p. 34)

He was a precocious child and was held to his tasks with a firm parental hand. In this respect, however, his case was far happier than that of the boy John Stuart Mill. As we just said, the home was of the Puritan stamp, but Mr. Cabot says:

"it must not be supposed, however, that the household, with all its austerities, was a gloomy one." (p. 37.)

Emerson set out on his journey of life weighted with poverty, invalidism, and the clerical bent of his family. Poverty he contended with, not gloomily or desperately, however, throughout his whole career, though chiefly in youth. Delicate health hung over him like a cloud, and not only hindered his work, but cast him often into despondency and apathy, and more than once drove him away from home to seek among strangers softer air and sunnier skies. Disease and death hovered around the inner circle of those dearest to him. Two rarely gifted brothers fell in early manhood at his side, the beautiful wife of his youth was carried off by consumption a year or two after the marriage, and his darling boy, his first-born, was torn from his arms at five years of age.

The picture of his long struggle with the ministry is pathetic. His heart was never in it, on account of the limitations that hedged it about, but the momentum of generations of clergymen was in his blood and was almost irresistible. He liked to preach, in his own way, but he hated the narrowness of the pulpit. He could not reconcile the consciousness of his growing wings with the small yard and high fence within which as a minister he found himself confined, but there was a great deal of fluttering before he finally got out.

School teaching he tried, and although he caught sight of the grand possibilities of that calling, he seems not to have had at that time the power to realize them. He falls for the most part into the ordinary, commonplace complainings that we expect to hear (and are seldom disappointed) from ordinary and commonplace teachers. He does not discover the best that is in his pupils or give them the best that is in him.

"Richard Henry Dana, Jr., was one of his scholars. Afterwards, when 'Two Years before the Mast' appeared, Emerson wrote to his brother William: 'Have you seen young Dana's book? Good as Robinson Crusoe, and all true. He was my scholar once, but he never learned this of me, more's the pity.'" (p. 115.)

In a little speech many years later, to some of his former pupils who had invited him to meet them, occurs this significant passage, which we specially commend to teachers:

"Now I have two regrets in regard to the school. The first is that my teaching was partial and external. I was at the very time already writing every night, in my chamber, my first thoughts on morals and the beautiful laws of compensation and of individual genius, which to observe and illustrate have given sweetness to many years of my life. I am afraid no hint of this ever came into the school, where we clung to the safe and cold details of languages, geography, arithmetic and chemistry. Now I believe that each should serve the other by his or her strength, not by their weakness; and that, if I could have had one hour of deep thought at that time, I could have engaged you in thoughts that would have given reality and depth and joy to the school, and raised all the details to the highest pleasure and nobleness. Then, I should have shown you (as I did afterwards to later friends) the poems and works of imagination I delighted in; the single passages which have made some men immortal. The sharing a joy of this kind makes teaching a liberal and delicious art. What I wonder at is that I did not read to you, and attempt to teach you to read, certain selections of Shakespeare and the poets, in which in late years I have had a certain degree of success." (pp. 70-71.)

Emerson's fame, as everybody knows, rests upon his ability as a thinker and writer. The 'Memoir' traces the development of his mind and exhibits the scope and mode of his thought at such length that, interesting as it is, we must wholly pass it over. His habit of

composition was so peculiar that it must be described, however briefly. The sentence was his unit of expression.

"In his writing, the sentence is the natural limit of continuous effort ; the context and connection was an afterthought.

" ' In writing my thoughts I seek no order, or harmony, or result. I am not careful to see how they comport with other thoughts and other moods : I trust them for that. Any more than how any one minute of the year is related to any other remote minute, which yet I know is so related. The thoughts and the minutes obey their own magnetisms, and will certainly reveal them in time. '

" His practice was, when a sentence had taken shape, to write it out in his journal, and leave it to find its fellows afterwards. These journals, paged and indexed, were the quarry from which he built his lectures and essays. When he had a paper to get ready, he took the material collected under the particular heading and added whatever suggested itself at the moment. The proportion thus added seems to have varied considerably ; it was large in the early time, say to about 1846, and sometimes very small in the later essays." (pp. 294-295.)

He sometimes grew tired and disgusted with the scrappiness of this way of writing and coveted fluency and continuity. In his journal (1854) is this outburst:

" Away with this Jew's rag-bag of ends and tufts of brocade, velvet, and cloth-of-gold, and let me spin some yards or miles of helpful twine ; a clew to lead to one kingly truth ; a cord to bind wholesome and belonging facts. "

In the earlier years Emerson appears to have been a student of natural history, in somewhat the same way that his friend Thoreau was, and he gave at one period a good many lectures upon topics of natural and physical science. But he was in no sense a naturalist. The study of nature by modern objective methods was not within the range of his abilities or inclinations. He was too much a poet for that. His writings, however, prose and verse, are enriched by hundreds of symbols and illustrations from the domains of physics, chemistry, botany, geology, and astronomy, and students of these sciences find a clearness and significance of expression in consequence of this which readers of no scientific training are likely to miss.

As a thinker Emerson is popularly known as a transcendentalist, and Mr. Cabot has taken pains to explain what that means, and, we think, with gratifying success.

" The transcendental was whatever lay beyond the stock notions and traditional beliefs to which adherence was expected because they were generally accepted by sensible persons. Some of the neophytes made perhaps a little too much parade of the transcendental consciousness, and society took its revenge by the nick name, Transcendentalists, applied without much discrimination to all who pretended to look beyond the boundaries of established opinion and practice." (p. 249.)

"The worst that could be said of Transcendentalism was that it led to a good deal of vamping, of rhetoric and paradox, spoken and acted,—confident statements, strong expressions, not always of serious conviction so much as of an overweening superiority to every-day opinions and practices, too lofty to condescend to any appreciation of them. People complained that Transcendentalism unfitted their sons for business and their daughters for society without making them fit for anything else. (p. 266)

"If it be asked, What was the good of Transcendentalism? I would suggest by way of reply that it was a sentiment; and that as such its influence for good, if it had any, is to be looked for in a deeper way of feeling and an enlarged way of thinking about all subjects, and not in a particular set of opinions or practices." (p. 267.)

The above quotations give but a hint of Mr. Cabot's skilful exposition of this part of his subject.

Emerson's attitude towards strangers was always respectful and expectant in the highest degree, as if he were looking confidently for the appearance of a person of unprecedented superiority, and thought it quite possible that each new acquaintance might turn out to be the hero he had been waiting for. This gave to his manners a singular charm which operated like a refined sort of flattery, and put those who conversed with him, especially for the first time, upon their highest behavior. But it was impossible for even his intimate friends to get into a satisfactory nearness or familiarity with him. This appears over and over again in the pages before us. He himself speaks with deep regret of a sort of chilliness or reluctance towards his most valued and admired companions which kept them ever at a certain distance.

"Most of the persons whom I see in my own house, I see across a gulf. I cannot go to them nor they come to me. Nothing can exceed the frigidity and labor of my speech with such." (p. 361.)

"In his own domestic circle, Emerson was affectionate and unreserved, even playful; but beyond that he had few intimates, hardly any except those who had been the companions of his childhood." (p. 361.)

To Emerson's impressiveness as a public speaker, the 'Memoir' hardly does justice. It was a great factor of his influence and fame. If the phonograph is soon brought to its promised perfection, many will feel keen regret that it did not come early enough to embalm for posterity, at least the faint echo of one of the most remarkable and indescribable of human voices. Mr. N. P. Willis gives full and piquant expression to his admiration of it in a paragraph which Mr. Cabot does well to find room for in the carefully sifted matter of these volumes, but which we cannot reproduce here. No one who had ears to hear could ever cease to wonder and thrill at the

tones of such an instrument. We have heard only one other which could be compared with it, and that is the voice of Joseph Jefferson, the actor. To call it rich, forcible, penetrating, flexible, is only to use so many words, and no words can ever describe the reedy bary-tone or "mellow, breezy bass," that without apparent effort filled all the spaces of the largest hall as with an august and persuasive presence; and we are assured by a friend who watched by his bedside near the hour of his death, that his voice remained "as deep and musical almost as ever."

We wish that these volumes had been more fully illustrated, in these days of excellent pictures. The portrait given is good as far as it goes, but it is not enough. Not only other portraits of Emerson at different periods of his life, but a view of his house, and of his favorite Walden woods, and of his last resting-place in Sleepy Hollow cemetery, would have attracted and gratified many readers. Especially we should have liked to see, as frontispiece to the second volume, some worthy reproduction of French's excellent bust, so faithful a likeness and so noble a representation of serene old age.

Many interesting topics we must leave untouched. The two happy marriages; the home life at Concord; the wide circle of friends, many of them known to fame; the three visits to Europe, in the morning, noon and evening of his life; his position as a reformer; his poems—all these we must commend to the reader as titles only, without a word of comment.

Emerson stands as the chief literary figure in America up to this time. Both as a writer and a man he has commanded wide attention for nearly a half century, and not a few of the most eminent of his contemporaries are to be counted among his admirers.

In 1872 his house was destroyed by fire, though most of its precious contents were saved. Kind friends sent him straightway to Europe with his daughter, and during his absence restored the dwelling, inside and out, for a surprise to him on his return.

"He reached home in May, and was received at the station in Concord, by a general gathering of his townspeople, who had arranged that the approach of the steamer should be notified by a peal of the church-bells, which tolled out the hour when he would come. The whole town assembled, down to the babies in their wagons, and as the train emerged from the Walden woods, the engine sent forth a note of triumph, which was echoed by the cheers of the assemblage. Emerson appeared, surprised and touched, on the platform, and was escorted with music between two rows of smiling school-children to his house, where a triumphal arch of leaves and flowers had been erected. Emerson went out to the gate and spoke his thanks to the crowd, and then returned to make a delighted progress through

the house, which had been restored, with some improvements, under the careful supervision of Mr. Keyes and Mr. W. R. Emerson, the architect,—the study unchanged, with its books and manuscripts and his pictures and keepsakes in their wonted array." (pp. 664-665.)

Political Economy. By Francis A. Walker, President of the Massachusetts Institute of Technology. Second Edition, Revised and Enlarged. New York: Henry Holt & Co., 1887.

Since the first edition of this work appeared in 1883, it has generally been conceded to be the best systematic text-book upon the subject of political economy. With the exception of the chapter upon the theory of international exchanges, the body of the text in the present edition remains nearly the same as before. The changes that have been made are principally changes in style. Long paragraphs have been broken into shorter ones, the number of headings in leaded type has been increased and unnecessary words and sentences omitted. Though there are few important changes in what appeared before, considerable new material has been added. The discussion of the unearned increment of land has been extended to two chapters, containing an able refutation of the attacks made by Mill, Carey and George upon the doctrine of rent; and there are new chapters upon foreign exchanges, the national banking system, the knights of labor and socialism.

In the discussion of the character and logical method of political economy, President Walker emphasizes the fact that as a science it has nothing to do with precepts and prescriptions and that it is only as an art that it treats of what ought to be. With respect to method he broadly accepts what is best in both schools. "Political economy" he says "should begin with the Ricardian method. A few simple assumptions being made, the processes of the production, exchange and distribution of wealth should be traced out and be brought together into a complete system, which may be called pure political economy, or arbitrary political economy, or, *a priori* political economy, or by the name of its greatest teacher, Ricardian political economy. Such a scheme should constitute the skeleton of all economic reasoning; but upon this frame-work should be imposed the flesh and blood of an actual, vital political economy, which takes account of men and societies as they are, with all their sympathies, apathies, and antipathies; with every organ developed, as in life; every nerve of motion or of sensibility in full play." Herein lies the real strength of the treatise. President Walker has clothed the dry bones of economic reasoning with the flesh and blood of real life.

For this reason, although we are compelled to dissent from the leading thesis of the work, we think it the best text-book yet written upon the subject.

A brief review of an economic treatise is necessarily unsatisfactory for the reason that a complete discussion of any of the questions involved requires nearly as much space as the book itself devotes to them. About all that can be done in the present instance is to mention the points with respect to which we disagree with the author.

In the treatment of exchange we would not have omitted the paragraph showing that value is not intrinsic. The relation of final utility to price is made very clear. Final utility does not, however, ultimately determine price, because it varies itself with supply. We looked for a change in the definition that "A price which corresponds closely to cost of production may be called the normal price." Rather is it to be proved that normal price, which is that price brought about by the action of free competition, is close to cost of production. The chapter on international exchanges is entirely rewritten and stated with much greater clearness. In addition it is pointed out that the theory of so-called international exchanges is a theory of exchanges independent of nationality between communities with different natural advantages between which labor and capital do not flow freely. The treatment of money is admirable. It does not seem, however, of much practical importance to consider with Ricardo that paper money is money upon which the seigniorage is 100 per cent. Without doubt it may theoretically be so considered, but the theory explains nothing. Every paper currency ever issued has been a promise to pay some other money, and has been accepted in the belief that the payment promised would sometime be made. Paper circulates, after the promise is lost sight of, from force of habit and from the want of any other medium of exchange, but as a matter of fact it is a promise first, last and all the time. If any government should ever issue "fiat money," the theory of Ricardo would be applicable.

Everyone at all acquainted with current economic literature associates President Walker's name with a special theory of distribution. According to this theory profits are the rent of rare natural ability in management. This rent is held to be strictly analogous to the rent of natural agents, and therefore determinate. From this it follows that wages are what is left of product after the determinate shares, rent, interest and profits are deducted, the minor elements of taxes and gains of speculation for convenience being left out of ac-

count. In the present edition of his treatise President Walker has added several pages to show in what sense wages are the residual share. We entirely agree with his statement that, if his theory of profits be conceded, the theory of wages follows necessarily.

We cannot, however, think that the theory of profits is correct and the error in it seems to us to arise from a partial statement of the doctrine of rent. Rent is determined by the fact that different parts of agricultural product are raised at different costs. This results 1st because the cost of different parts of the product raised from the same tract of land differs for the reason that the return to successive applications of labor and capital to the same tract diminishes in accordance with the law of diminishing returns, and 2nd because the cost of parts of the product raised upon different tracts differs because of difference in the fertility of the soils or in other words because the return of different soils to similar applications of labor and capital differs. Distance from the market may be included in fertility, if the net value of the product be considered or else for convenience in statement may be disregarded. The diminishing productiveness of land is the cause of the existence of rent because without it rent would not be paid. President Walker attributes rent solely to the varying fertility of different soils, which does not primarily cause rent but merely accounts for the difference in the amount of rent that will be paid for the use of different soils. The analogy between profits and rents is only a partial one. It applies to that variation in the fertility of different soils that accounts for differences in rent, but does not extend to the fundamental law of diminishing returns, which is the cause of the existence of rent. President Walker's theory then accounts for differences in profits but not for the existence of profits. In precisely the same way it may be made to explain differences in wages of labor other than that of management. It does not then answer the requirement of a law of profits and if our criticism of this part of his theory of distribution be correct, the theory of wages falls with it.

Much time has been wasted in the discussion of the question whether wages are paid out of capital or product. The answer depends upon the definition of the terms. If paid out of capital, they are also in a sense paid out of product, because all capital comes from product. If paid out of current product, they are in another sense paid out of capital, if only capital be taken as it is by some writers, to include current product. Whatever they are paid out of, wages are *limited* by current pro-

duct and not *measured* by it as President Walker claims. If we accept Prof. J. B. Clark's division of profits into wages of directive labor and pure profits arising from difference between cost and selling price, then the former share will be determined in the same way that other wages are determined and the latter will be the share left after all others are deducted. Though wages are not measured by product, they vary with and are limited by the prospect of product which on the average and in the long run is the same as the product itself. Both the estimate that each and every employer makes of the probable product and the amount and value of the product itself are uncertain and indeterminate. Therefore the amount that can be paid in wages is indeterminate. Even if determinate, it would be of little use, since average wages would give us no more idea of actual wages than the average age twenty gives of the ages of five friends, four of whom are ten and one sixty. The best we can do is to ascertain as nearly as may be the limits below which the standard of comfort will prevent wages from falling and above which the limitation upon the product will prevent them from rising.

One or two very minor errors may be noted. One fifth of the specie reserve of the Bank of England may be silver instead of one fourth as stated in a note on page 170. The language of the Bank Act is that the silver shall not exceed "one fourth part of the gold coin and bullion," which would make it one fifth of the total reserve. The author of the work on the "English Constitution," quoted on page 411, was Sir Edward S. instead of Sir Edmund Creasy. The only typographical error we have noticed is the omission of the last word of the chapter ending on page 69.

In this connection we would call attention to President Walker's "Briefer Course in Political Economy." The publishers intend to issue a new edition of it, making changes in the chapter on international exchanges corresponding to those made in the corresponding chapter of the larger work. The book is not a mere abridgment of the larger one, but is entirely re-written to meet the needs of high schools. To teachers of political economy in high schools, who have not had the advantage of a thorough training in the subject, we can suggest no better plan than to use the "Briefer Course" as a class text-book and to study carefully the larger work in connection with it. Special points could be further studied in the author's "Wages Question," "Money," "Money, Trade and Industry," and "Land and Its Rent."

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THE MASTERY OF THE ENGLISH TONGUE.

PRINCIPAL WILLIAM K. WICKES, WATERTOWN HIGH SCHOOL.

HOW can we get the most and the best worth out of the English tongue? "That is the question." I answer: Perhaps by taking note of, and making due allowance for, some, at least, of the difficulties and discouragements lying in the path to success; by stating a few at least of the qualities needful in those who teach; and then, by mention of specific points helpful to a consummation of good English so "devoutly to be wished."

Not least among the difficulties is that of *lack of appreciation of the need for hard and ceaseless work, alike on part of teacher and of pupil*. This lack is caused by the feeling that to speak one's native tongue is as easy as to breathe one's native air. *That*, we think, is the true and only "Natural Method"; that, Dame-Nature's patent, for whose use she exacts no royalty—except to keep the talking machine in running order. Thus it comes to pass that whoso listens may hear the tongue saying:

"Men may come, and men may go,
But I go on forever!"

It is commonly believed, and is perhaps true, that to *write* one's native tongue is far harder than to *speak* it. "Tom Birch is as brisk

as a bee in conversation; but no sooner does he take a pen in hand than it becomes a torpedo to him, and benumbs all his faculties." And yet, how often, in bland unconsciousness of what we are doing, we are actually sitting on the justice's bench along with Dogberry, and concurring in the opinion which he hands down, "To be a well-favored man is the gift of fortune, but to write and read comes by nature."

The very commonness of our English tongue makes it difficult to teach it. What! teach a child to drink of a fountain which perpetually bubbles up at his feet? teach him to breathe the air which completely and constantly environs him? in short, teach him to do that which is his, without teaching—even as instinct belongs to the beaver, and gentleness to the lamb? It thus becomes a hard task to awaken interest in that which is innate, free as water, all-pervasive in the mental, as the atmosphere in the physical world. Out of this fact, also, comes the homely but terse old proverb, "Talk is cheap." Why cheap? Because, perchance, of its very commonness.

It is greatly to be feared, also, that this very *commonness may lead to practical indifference.* For why make effort to obtain that which may be had for the asking? Nay, which will come unasked and unsought. Surely, it is this theory, and none other, which, for many, many years completely ignored the existence of English in the list of college-entrance requirements, and pinched the English work of the college course into such threatening leanness that there was grave danger lest an untoward puff of wind might blow it entirely away. Indeed, if there is practical indifference to-day, concerning English, among teachers who, a score of years ago or more, were college students, let them charge it to the impulse and inspiration they did *not* get amid the classic shades of their beloved *Alma Mater*: if there is zeal for the cause of their mother-tongue, let them credit it to the righteous indignation they feel because defrauded of their rights, and to an unalterable resolve to do for others that which ought to have been done for them.

Still again, *the teaching of English is difficult because the tongue has become so encrusted with grammars, glosses, commentaries and the like, that it is extremely hard to find the tongue itself.* Several years since I counted 167 different grammars in the catalogue of a State library. Of course, each was in some respects different from every other—though the differences were not more important, I dare say, than in certain editions of the classics where one edition differeth from

another not "in glory" but, here and there, in a punctuation mark. It is indeed easy to talk of ignoring the existence of the whole long list of grammars—easy to decry "parsing," than which, says that admirable English scholar, W. J. Rolfe, "no exercise can be more useless,"—easy to resolve to teach only the essential and indispensable things of English; but how very hard to carry out in practice the ignoring, the decrying, the resolving, when so many required examinations have in them so much of technical grammar.

Although I have hinted, merely, at the difficulties in the path to mastery of the English tongue, I must turn to hint the discouragements.

And I note as not least among discouragements what I may call the "*street training*" of pupils. It is a fact that every trade and business—may I not also say every profession?—has its dialect, in some respects peculiar and provincial; and all these varying tongues may be heard from time to time uttering themselves along all the walks and avenues of trade and business. Nor do I mean by this simply the "talking shop"—an expression with which Americans are so familiar. For I take it that that has relation to a man's business merely—not at all to the expressions which he uses in speaking of that business. But I mean the expressions themselves,—not all to be condemned, many to be commended as terse and useful, but some of them so illogical, inconsequential, idiotic, as to deserve to be put under the perpetual ban of non-communication. Such are the "evil communications" which corrupt the "manners" of good, clear English. It is wonderful and woeful, too, how quickly youth, with every sense alert and every window of the mind thrown wide open to receive everything with which the transient gales of life come freighted, will catch and hold the very "form and pressure" of the most useless and senseless expressions of current speech. This is the very embodiment and essence of the "wax-to-receive, marble-to-retain" spirit. It is a fact picture, too, and not a fancy sketch. Draw near a company of boys when the talking hour has come and the talking mood is on, especially when that time follows hard upon some happening in the town,—a street parade, robbery, a fire, a show; or listen to a group of girls discussing and dissecting a recent sociable, party, picnic;—and if you, my reader, do not agree with me that much that is useless, senseless and even unwholesome crops out of their verbiage of conversation, why, then—I cannot agree with you,—and like Robin who could not persuade the friar, and the

friar who could not convince Robin, we will hold on our different ways. But there shall be no quarrel between us. We will simply agree that your observation has been different from mine, and I will confess that yours has led to far less discouraging results than mine, potent still to discourage. But more is the "*home training*" of pupils. In some cases, indeed, it is good and only good; but in others—and by far the greater number—bad and only bad. This ill-training is, to be sure, an unconscious importation on the part of parents,—for where are the parents who would knowingly give their children a stone instead of bread? It is an unconscious imbibing on the part of the children—yet none the less a real one. This comes about, in very many instances, from lack of early education on the part of parents. I do not say this to condemn them—for early advantages may have been denied to them. It is even true, in some cases, that well-educated parents fail to impart that propriety in speech which might reasonably be expected of them, simply because in the gliding years, full for them of manifold cares, they have not kept pace with the ever-changing modes of speech; for there is fashion in speech as well as dress, though it is to be feared that the world is far less concerned about the former than the latter. Very few parents are so exercised over the frequent changes in pronunciation, for instance, in these modern days, as to look through the dictionary every morning—save Sunday—to see whether any words have changed their accents during the night before! And I think myself that that would be going too far and be following the matter up too closely. But, fellow pedagogues and pedagoguesses, you know precisely what I mean, namely: That many pupils come before you who, because of the total lack of sound speech and the constant use of the unsound in the all-potent home-life, not only have no adequate appreciation of the right and reasonable in speech when it falls to your lot to speak to or with them—but are found to be full of grave misapprehensions and downright defects which fill you with discouragement if you have any desire to be appreciated in what you are saying, and lead you, perhaps not to cry out, but to cry *in*, "Who is sufficient for these things?" Let us be kind but radical in our treatment of this discouraging phase of our work, and have—as I heard a boy say the other day in declaiming on the Irish question,—"*the courage of our evictions!*"

But the idle words of street, and the misapplied words of home training, are both overmatched, in their power to discourage, by the

harm '*slang*' inflicts on good English. And I say this with full appreciation of the fact that a good deal of what is commonly thought to be slang, is not really such. To give a perfect definition of what slang is may well puzzle word-masters; to give a complete catalogue of slang—impossible. But there can be no doubt that, as life broadens "from precedent to precedent"—to use Milord Tennyson's phrase; or, as an American might properly say, from president to president—to "talk United States" [is that slang?]; I say, as life broadens, the living language of a live people will necessarily take on new forms of old words and even invent new words. Sometimes an odd or repellent-sounding word is, because of its sound, thought slang; yet "potwalloper" is a good English word in Macaulay. At the time of the Civil War men who "skedaddled" to Canada so as not to catch cold, so to speak, in the draft, did not exemplify what a bright woman of my acquaintance calls "slang in action," for the word is not slang; the head-master of a Massachusetts high school, a very cultivated man, evoked tremendous applause at a public dinner to the designer of the "Volunteer," when he said that though that yacht lacked a certain kind of sail, she "got there just the same;" and the title of the graphic Judge Tourgee's most recent lecture is: "Give us a Rest." Yet, it is very hard to draw the line—as hard at times as "to split a hair 'twixt south and southwest side." But in other cases it is very easy; and one need not be an extreme purist in language to know that our common speech has far too many indefensible as well as indefinable expressions. I am concerned here, however, with the use of slang as a discouraging force in teaching, because I believe that its habitual use weakens and may even entirely destroy that fine literary spirit which is of such inestimable value to youth, which may give such inexpressible pleasure in later years, and which therefore it should be the aim of the teacher to instill. But the best literature is clothed in the most choice and chaste words. How can such words, and the thoughts which they convey, find perfect lodgement in the mind when words of base or doubtful import clog and bar the entrance? If, then, "the coin is spurious, nail it down." For it is a principle as true in linguistic as in political economy that, where both circulate, the baser coin drives out the better.

And now, I trust I may be pardoned, not be thought too presumptuous, if I intimate, as compactly as I can, a few of the things needful for those who may attempt to teach their mother-tongue. I am sure, however, that nobody will take offence—nobody, save here and

there a snappish grammatical critic, ever does take offence at anything said concerning the study of the English tongue; always quiet assent—or dissent, or complete indifference. Of course, all this will be changed when the time comes—as come it will—for the English to foreclose, so far as the public schools are concerned, the mortgage which it holds upon other languages, and to settle up the estate. For the Saxon language, equally with the Saxon race, is “the heir of all the ages, in the foremost files of time.”

Well then, first, “*personal appreciation of the worth of English is needful to the teacher of it.*” No extended argument, surely, is needful to prove this; and yet, do we fully realize how much such appreciation means? It means a deep and earnest scrutiny into the mighty past of English literature and history; aye of American, too—for our own land has been making both history and literature more or less ever since it has had a being. Professor Moses Coit Tyler once told the writer that he was surprised and delighted to find the wealth of literature which centered about the American Revolution,—and that, too, although the classics have told us that letters are silent in the midst of arms. But English life and letters alone considered, how wide is the range for study, how exhaustless the information to be gleaned, the inspiration to be gained! Yet not until the words are by us welded into thoughts, and thoughts become to us as living things, can we possibly hope to appreciate what is within the covers of the great book of English. Is it suggested that for much we may get we may find no use? There need be no apprehension on that score—provided only the knowledge acquired is put into the mind in such logical and orderly fashion that when it is wanted it can be found. Be assured, some usefulness is in it, and some use will sometime come out of it.

Second. Some degree of “*linguistic training*” is needful. Thomas Jefferson was wiser in his day and generation than most men of later days and generations have been, when he made provision in his favorite university for the study of Anglo-Saxon. Let it be granted, if you will, that his thought in making such provision was purely political—that he believed, as well he might, that the study of the earlier phases of English would give better appreciation than could otherwise be, of the earlier life of the English race. Is there not force, pray, even to-day, in *that* view? But it is more to our present purpose to look upon the purely linguistic side of the argument. It goes without saying that hundreds of words now almost meaningless

to pupils might, by pointing out their sources, become luminous and helpful to them. The writer has tried the experiment, with many a Saxon, or, if you please, early-English word, and has been well pleased with the result. Let the teacher, to be sure, add if possible, classic training—for while the words which have come to us from Latin and Greek, especially, are no longer Latin and Greek words, but are adopted into the household of English, it is both pleasant and profitable to visit them in their earlier homes, and learn something of the life they there lived. But let no one, in any case, be frightened by Goethe's linguistic bugaboo, that a man who knows only his own tongue cannot possibly know *that*.

Third. This work of which we are speaking demands *courage*. Not physical, but what I may call a mental-moral courage. On the mental side, courage to think some words and expressions wrong to which a great name has given the sanction of its pen or voice; on the moral side, courage to pronounce and denounce them—the words—accordingly. I well remember thinking, as a sophomore in college, to silence the criticism of a senior by telling him that what he had just condemned in me as an ungrammatical and improper use of language was quoted from John Stuart Mill. "I can't help it," said he, "though an angel spake it, it is wrong." And he was right. Is it not true, also, that it often takes great courage to correct the wrong influence or impression of a pupil concerning some author or character in literature?—especially if the estimate of the pupil be honest and the result of thinking on his part, courage to tell him that certain expressions are utterly astray? and a vast deal of courage to take the tender flowers of speech blooming in his composition, or formal essay, and cut them down and out with the keen scythe of criticism? yes, and courage incalculable to root up the pretty, parti-colored weeds which he has planted, thinking them to be the choicest of flowers—the very pinks of perfection? "Hath not a Jew senses?" says Shylock. "Hath not a boy feelings?" says disheartened youth. Indeed, I hardly know of any trait so much needed as courage, in such a case, for I suppose it is a truth so clear as not to admit of dispute that, as

"No rogue e'er felt the halter draw,
With good opinion of the law,"—

so,

"No boy e'er saw his thoughts erased,
With good opinion of his critic's taste."

It follows, Fourth. That great *patience* is requisite for the work in hand. This is true, I know, all along the line of pedagogic endeavor. But it seems to me to be especially true when the teacher is called upon to follow the pupil through the mazes of oral or written expression. Again and again the lad will wander from the right path, missing entirely the road along which he must travel if he would reach the goal where lies the truth or fact which he started out to find; and so again and again must the teacher patiently bring him back, and start him right anew. "In your patience possess ye your souls." If this you do, you may some day hope to get full possession of the expanding minds of others.

Fifth. Finally, briefly—nothing that is worthy will be accomplished without positive and unfailing *enthusiasm*. A most beautiful quality of the soul it ever is—but not a whit more beautiful than useful; difficult indeed to exercise—but for the work of which we are speaking, indispensable. At all hazard of time and effort, it must now be exercised. Let it be encased in the armor of duty, gilded with the beams of delight. And it will be wonderful to see how many obstacles will vanish before its majestic presence and resistless power. To teach the great English language worthily is a mighty task—too great to accomplish entirely unaided by such a potent helper.

Well, is it not quite clear to see, not only that the English language is worth teaching, but also that it will not teach itself? Yes, beyond that—that it must be taught, if taught at all, in teeth of difficulties and discouragements, and that they who would teach it must possess a goodly stock of all-too-rare qualities? Yet the English language has won many victories, through many centuries, on every field of human conflict and endeavor; and not least in number and import have been those that have been now since the schoolmaster has been abroad, and in the winning of which he has had some share, direct or indirect; not indeed Tyrtæus-like by singing war-hymns to set Spartan souls on fire for war—but by showing that there is as much difference between well-taught and untaught English, as between the man who can barely distinguish 'twixt "Old Hundred" and "Nancy Lee," and the musician whose tongue can frame every sound in the gamut of the chromatic scale!

To the end that it may serve as a motto in the matter of which we are now to speak, I ask the printer to put in small caps, and in a line by itself the following:

THE ART OF RETENTION IS LARGELY DUE TO THE ACT OF
REPETITION.

And I ask the teacher under whose keen but sympathetic eye that sentence may fall, if that, or a like but better one of his own devising, ought not ever to be kept before the mind of him who undertakes to teach the English tongue? for if ever there was a study whose formula should be, line + line and precept + precept=success, this is that study. And even then, so indispensable is the element of time, in order that the seed sown may germinate and grow to golden fruition, that the sower may never see the harvest—may, before it is garnered, pass

“Beneath the low, green tent,
Whose curtain never outward swings.”

Nor should it ever be forgotten that the faculty for language is so slight in some pupils, that the mind's ear (may we not so speak, following Shakespeare's “mind's eye”?) can scarcely detect it. The eye physical of the pupil seems not to catch the form of words, nor the ear physical, their sound, nor any inner and occult sense to seize upon their meaning. I never was gladder to be released from a useless task than when a parent wrote to me concerning his son, whose language-faculty was almost nihilativeness itself, “Please excuse my son from speaking, as I do not wish you to make an orator of him.” Make an orator of *him*?

Shades of Demosthenes and Cicero,
Pray, gently pick him up and let him go!

It is to be presumed that every pupil far enough advanced to enter a high school, knows all the letters of the English language. But it is surprising to see how many do not know their proper *sounds*. Did you ever hear of the man in a certain legislature who had to be bribed to be honest? Well it really does seem as though some pupils must be bribed, beaten, or bamboozled into correct soundings. You say, teacher, that the early training was faulty. This is true in very many cases, and a grievous fault it is! When to such defects, positive provincialisms in sound are added, matters are desperate, and something must, if possible, be done. I lay great stress upon this matter, because—as Dr. Holmes has inimitably intimated in a passage too long to quote here,—the presence of such provincialisms seriously injures the effect of the sweetest voice or most gracious.

manner. It would, I think, be quite true to say that the very broadness of the sounds indicates a corresponding narrowness of the mind. Of course, the careful teacher will understand that there are some sounds, so widely prevalent in certain sections of our country, that they have the dignity and authority of a dialect and cannot successfully be assailed; but such sounds, as also he will know, stand not upon the same ground as mere localisms, which ought not to prevail among our educated youth, any more than we would expect to hear the cockney tone issue from the lips of a senior wrangler of Cambridge University. But the practical question now arises—can aught be done to improve the sounds of pupils? Yes, and I know of no better way than the very simple, yet telling process of uttering the individual sounds of the language, with varying pitch and force, in presence of a class—requiring them to repeat in concert the sounds, and, also individually, after confidence has been established. The value of the concert exercise will be found in the fact that some ears, not specially discriminating in the matter of sounds, will catch the tone and shade of other voices; the value of the individual drill is too apparent to need remark. It will be said that such an exercise is of the nature of elocutionary drill. It certainly is, and therein lies a part, at least, of its value. It may also be made to possess a musical value—modulating and enriching the voice with cadences before unknown to it. When the individual sounds are well in mouth, so to speak, then conjoin them in words, possessing in them thought enough subtly to suggest the proper pitch and power. Nice discernment of the power of a well-trained voice had Longfellow when he said,

“And lend to the rhyme of the poet
The beauty of thy voice.”

But if such a voice be not acquired in early years, when the organs of speech are flexile and the imitative faculty, in sound, as well as in deeds, is so strong, it is greatly to be feared that time, which has such a mellowing effect on many things, will not soften the sounds which issue from the lips of manhood and womanhood. The great charm of a cultivated English woman's conversation is often resident in her voice—soft and low,—“an excellent thing in woman,” well says Shakespeare. The prevailing American tone in men and women is so loud and strident as almost to suggest a reason for the existence of that senseless slang phrase, “Now you're shoutin'.” Truly, the effort to make boys and girls sound their native tongue correctly is well worth making.

Closely allied to the matter of sound, is that of *enunciation*—the full, round, complete delivery of words, in every syllable appertaining to them. But how seldom we hear such speaking; all in haste, and confusion is the result. Our words are not “chiseled,” they are chipped—nay, clipped. We slip, slide, slur over our words and cut as sorry a figure as Mr. Pickwick, sprawling on skates. We draw up a train of thought, well laden with words, and make ready to send it forth on its mission. Before it is well out of the depot, we send out another, with the same sort of oral freight—some delay stops the first train for an instant, and crashing into it goes the second, the words spill out and tumble over each other in direst confusion—and both trains are wrecked! Teacher, you catch the figure, do you not? And you agree with me, I know, that if the metronomic tongue of our youth can be set to slower beat, we may get more and better word-music from them, enhancing much the pleasure of their speech.

Turning now for a glance at written language (for I want to speak of both, oral and written, as my theme goes on), I note the need of attention to *spelling*. I am well aware of the difficulty of teaching this subject with satisfaction—of the few rules of unfailing usefulness in our erratic English orthography—of the meagre results which seem to flow, in many cases, after hard study—and of the awe-inspiring ingenuity which is often shown in the efforts of pupils to spell the, to them, unspellable. To me, there is a flavor of pathos in the time worn old pun about boys and girls who are troubled with “bad spells.” And yet, I cannot but smile when I think of an older friend of mine—now a capital writer for a metropolitan daily paper—who once wrote a poem for a prize. It was full of such airy and exalted words as poets are wont to use, and among them the word ‘angel’ was quite frequent—and every time it was used, it was spelled a-n-g-l-e. Shade of Euclid! What in common have angles and angels? No wonder the committee wrote to him—not having the courage to tell him—that he turned his angles beautifully, but made sorry work with his angels. When the erudite editor of this magazine and the writer of this article, were teaching under the same roof, I saw—perhaps he did not—the word “physician” spelled in seventeen different ways by a room-full of bright, city lads. And I could tell more spelling-stories. But a man has lately written an article on “Over-Illustration”; so I forbear. I simply say that no pains must be spared to make pupils correctly spell the thoughts they put on paper.

No training in English can be thorough which fails to take notice of the *pronunciation* of words. For though a pupil sound his letters clearly, and enunciate and spell his words correctly, there is something lacking when the accent falls not where it ought. It then becomes like that definition of accent a boy once gave me—"a *distress* of voice on a particular syllable." I do not mean that we should say "clark" for "clerk," though sanctioned and practiced by good authority, unless we wish; nor slavishly adhere to what is odd and affected, even though it may be able to show some authority for itself. And, to be plain, there is too great a tendency towards an English accent, merely because English. This ought not to be. Englishmen take no pains to ascertain what Americans deem correct. In England last summer, the librarian of one of the most important libraries in the island showed me the proof-sheets of a work on pronunciation. I noticed the lack of American authorities, and found by conversation with him, that he did not even know of the existence of Soule and Wheeler's remarkable book on the same subject—a little book crammed with learning, and generous in its meed of praise to the whole list of English lexicographers from Dr. Johnson down. Let us beware of insularity in a matter affecting a world-wide language—beware, alike, of adopting it, and of practicing it. Let us get the best and give the best! Yes, and apropos of what I have been saying, I recall Lowell's half-playful yet serious remark at Dulwich College,—“You Englishmen speak English very well, considering how long you have been separated from us in America!”

To pass again for a moment to written speech, let me say, that the teacher must not neglect to train his pupils in the use of *punctuation*. Time was when such marks were unknown—when the page was unbroken by their presence, and they uttered no invitation to the mental traveler to stop and rest his mind or voice. But in these days we cannot get on without them, any more than without books. I am of opinion that teachers should be strenuous to teach this seemingly simple art—for its use measures, with no mean accuracy, the degree of appreciation which the user has of that which he has written. Help him, therefore, so to know and use these symbols of the course and continuity of his thought, that he may understand himself, and be understood of others.

We come now to one of the most fascinating and helpful of all the aids to the mastery of English—the *study of words*. This is both an exhaustless and an indispensable study. Nor is the philosophy of its need

far to seek. For there can, of course, be no adequate grasp of our own thoughts which does not presuppose a correct use of words, nor any proper appreciation of the thoughts of others which does not involve a correct knowledge of words. But such knowledge and use will not come of themselves, unsought, unstudied and untried. The scant vocabulary of early childhood, and the simple words by which it makes known its wants, do indeed come as by instinct, serving, almost without training, their narrow but useful purposes. But when "the youth who daily further from the east must travel" reaches school-life—when, so to speak, "the shades of the prison-house begin to close about the growing boy,"—and he begins to deal with new thoughts expressed in words new to him, then it is that he begins to realize, or rather, to illustrate what Wordsworth meant by speaking of the path of words as "a dim and perilous way." *How* dim, *how* perilous, I am sure the boy does not realize. If he did, it would tie up his tongue, and fetter his pen to a dictionary, forever; he would be subject to bondage all his life through fear, not only of the first step, but every successive one—since he would feel that they would all "count." But no! with the intrepid heedlessness of youth, on he goes: Result—"English as she is wrote!" By the way, F—ll—w T—ch—rs (I wrote these words blindly so that nobody outside of our guild would understand what I am about to say), I wonder who is to blame for the condition of English which that little book reveals! You? I? All of us? None of *us*? The pupils? The language? Did you ever see any adequate answer to it? *Can* any answer be made to it? Can *you* answer it? I do not think *I* can,—but I can partially explain the matter by a theory—and I can draw a moral from it, which is what I chiefly wish to do. This is my theory, in brief: To an extent unsuspected by those who have never looked into the case, there is a radical defect, among boys and girls, in the sense of sound. A teacher, in explanation of some metrical thing or mental theme, before unknown to his pupils, uses some particular word before unknown to them (and quite likely a long-tailed word in -osity or -ation), perhaps uses it again and again, and really leaves in the minds of his pupils, by his lucid explanations, a very good and true notion, though possibly not complete, of the thing or theme; yet they did not *quite* catch that central and signifying word! Now turn to the little book of which we spoke a minute since, and note how many words used are *quite* like in sound to those they ought to have used—but yet not *the* words—a little more than like and less than exact. They have

the right idea, but coupled to the wrong word; or, if you will, they have the right pig, but they have him by the wrong ear! The horse is before the cart, but—it's the wrong horse! The moral: Be careful, to the very verge of painstaking, to see that pupils understand the sound, spelling, and sense of the words you utter and of those they utter. Let them question you—and do you question them. Reduce *sesquipedalia* to their simplest terms, and cancel them entirely out whenever possible! Of course, you may now and then use a big word, in a playful way, if you do it with a serious purpose; or gently to phlebotomize a too-full vocabulary; or to intimate the base uses to which examination papers may some day put the most patrician-like words. But, as a rule, let your speech be seasoned with the grace of simplicity. One word more. Whenever you can get away from the ordinary lesson-work, take an excursion with your class amid hitherto unexplored words—point out whence they sprang, and along what highways and byways of thought and expression they have traveled down to the present time; encourage them to seek for themselves and bring back report to you; then—who can tell? some day, in the speeches or writings of your boys and girls, you may partake of the very grapes of Eschol, and rejoice.

But I must hint and hurry on. We are now nearing that higher plane of work where progress is of necessity slow and baffled endeavors many. Hitherto there has been, in the points suggested, a chance for the material and mechanical, so to speak, in sound, in the employment of eye and ear and voice,—and so, easier approach to the minds of pupils through gateways of the outer senses. What follows relates more to the immaterial and intangible, has to do with mind rather than mechanism, and appeals to the inner senses to awaken, that they may the better judge of the hidden sources and sweets of literature.

The use of fitting diction and the formation of a good style ought to be set down among the memoranda of the English teacher. True, it may not be possible to do much, in the ordinary school course, with such high themes,—for even though facilities for teaching were most excellent, such graces of scholarship are the growth of time and prolonged effort, and do not come, to use Webster's famous phrase, "like the bursting forth of volcanic fires." Long-burning and steady must be that fire in the mind which will fuse its thoughts and expressions into compact and clear diction and cause the lambent flame of an attractive style to play about the pen or tongue. Yet, if pupils

can be taught merely what good diction is, and what, a good style—so that they can detect their presence or absence in or from any literary work,—something will be gained for the cause of good and serviceable English. I once knew a lad who was put to the cruel task of writing an essay upon an international question between Spain and the United States. Thus he ended: “Finally, although I have written as pompously as a diplomatist, *for the sake of the style*, yet I admit I know nothing whatever about the matter.” Poor fellow! thrown into the depths of the sea and told to swim ashore, instead of being conducted into the wide expanse of nature, and told to dilate upon “Spring”!

It is a serviceable thing, I think, to pupils, and finely reacts upon the teacher himself, to *point out* the bits of real, true *sentiment* ever cropping out, here and there; from all genuinely good literature. Indeed, Taine says that the proper office of literature is to take note of sentiment, and that the higher that sentiment is, the nobler will be the literature. Nor need all the out-pointing be done by the teacher. Let him but get the class to see that that is the game for which the hunt is to be made, and many will join in the chase, and it will be strange indeed if some do not run down and capture for the mind some really noble thoughts. The danger is lest over-anxiety defeat their ambition. I once heard this fine passage read—“Burke, Hume, Goldsmith and Gibbon are all great generals in the discipline of their verbal armies and the conduct of their *paper wars*.” Well, boys, I said, what are paper wars? Young T.—“Spit balls!” Imagine Hume and poor “Noll” pelting with paper pellets, the author of *Reflections upon the French Revolution*, and the historian of the Decline and Fall!

Of extreme importance to the rising generation is the *cultivation of the memory*. It is most sadly and shamefully neglected in these days. Oh, that some one would write a book on the Decline and Fall of the Memory! So write it, I mean, that true and lasting reform would come out of its perusal; write it with such deep conviction of the melancholy grandeur of the subject as Gibbon had of his theme when he sat at even-tide in Rome and mused upon the fate of the fallen city. English literature is full of passages, in prose and poetry, of matchless beauty. Lodged in the memory where it is quick to catch and strong to keep, such passages will prove a priceless boon, a perpetual benediction in after years. The boy who “spouts” Shakespeare may become the man who will love

and appreciate him. Moreover, the effect of memory-training upon other faculties of the mind is good and only good. Underneath its beneficent power, the imagination will expand, as it absorbs the sunshine stored up in the works of gifted men and women, and drink in the cooling and healing dew of their speech. The much-neglected study of logic will reveal much unsuspected strength and power as pupils learn for themselves what the great orators of our English speech and race have uttered. In turn, and in time, pupils may go beyond mere formal logic to that "logic set on fire" which is the aptest phrase of which I know for that reasoning which glows with quenchless radiance at the same time that it convinces and enchains the mind. And now, if teachers can take another step—long, hard, yet perchance not impossible,—and by it give to their pupils the power to *interpret literature*, in its vast and varied phases; they will bestow upon them a power which stops just short of that point to which only inborn genius can ever attain—the power to create those elemental thoughts which can never die, because they are the expression of the life and soul of man.

IN CONCLUSION.

Fair limits to the length of this article have obliged me to refer in very brief terms to many points. I regret this the less, however, because I know I am writing chiefly for those whose conscientious desire to do the best and the most they can for those committed to their care, is most real and constant, and whose intelligence will lead them to the widest and best means of procedure in all matters of detail.

Fair limits, also, oblige me entirely to omit mention of several outside aids to the art of expression in our mother-tongue. This I regret the more, because of a conviction of their extreme importance. Noteworthy among these aids is that of debating societies, concerning whose good influence on pupils I could speak with perfect confidence and large illustrations; also, noteworthy, the rendering of literary programs in school or community, as to the good influence of which on "children of a larger growth," I could also speak in most sure and favorable terms.

How interesting is the recent art of composite photography, by means of which the facial features of many persons are blended into a single face in which, perchance, individual lineaments may be

traced. So, friends of the English tongue, what can be more interesting than to attempt to blend into one grand and characteristic portrait, the intellectual features of the mighty writers and speakers of our native tongue? What more profitable than to hang that portrait upon the walls of memory—studying, resolving, combining its features—writing under it this legend :—Mastery of the English Tongue.

THE CULTIVATION OF THE READING HABIT.

PRINCIPAL R. S. KEYER, PH. D., MIDDLEBURGH, N. Y.

The mental habits of a large number of our youth are formed in the secondary school. As a rule, it is the academy or high school which most deeply affects the trend of a pupil's after thought and acquirements, and especially his interest in literature—his fondness for reading good books. There are few persons who have hated books in the academy and have come to love them in college. A student sometimes finds in college the subject to which he is desirous of devoting the work and study of his lifetime—comes unexpectedly upon his real vocation. But it is less often that he acquires there his first genuine interest in good literature. Indeed, some colleges discourage, at least by implication, any reading not specially designed to help in the preparation of lessons or essays. A student is encouraged to read upon a particular subject for a particular purpose; but oftentimes he is not encouraged to save odd minutes by reading for general knowledge and inspiration, for the purpose of forming and strengthening the reading habit. A graduate of high standing from one of our prominent colleges told me that in five years after leaving college he did not read a single book for purpose of culture, satisfying his mental hunger with a very few books strictly technical.

But the great majority of pupils do not go to college, and most of the remainder have their bias formed before reaching there. The responsibility for forming the intellectual tastes is largely with the secondary school. It is a great responsibility and one by no means fully appreciated. The reading habit is about the most important influence a pupil can carry away from school with him. It is a con-

stant force in widening and deepening the intellectual life. Other acquirements dry up or become narrow and technical without this quickening force. To many a love for reading has proved of more value than a college course. We must certainly add such a love to the restricted curriculum of the secondary school if that is to be a real and permanent means of culture.

The amount of attention now being paid to good reading in the ordinary school course is a most encouraging sign. Educators have come to realize that the intellectual part of learning to read is more difficult than the mechanical, and requires a longer and more varied training. Much reading matter is now published in a form suitable for reading during the early years of a child's school life. Proper attention to a pupil's reading during the years of his grammar school course will greatly assist the work which the secondary school can do for him. But some of the reading matter now offered in our reading books and supplementary readers is of a kind that will hardly stimulate an interest in good literature. Its primary aim seems to be to amuse the pupil without calling for much mental effort on his part. Many of our new readers show a falling off in the literary character of their selections. They call for less intellectual work on the part of the pupil, and offer to the teacher less favorable opportunity for giving instruction. They are constructed to lead up to the newspaper and the novel. When the pupil has gained the ability to read these the work of teaching reading is apparently finished. But surely the pupil ought at the earliest possible moment to make the acquaintance of real literature under the guidance of a teacher. He may be left to find his own way to the newspaper and to the story book; but he needs to be taught how to read what calls for expansion of mind. His reading work in school ought to be a means of literary culture and of intellectual training.

There are two ways in which secondary schools can aid in the formation of the reading habit,—by their indirect influence through the other instruction of the school, and by the direct teaching of English literature and allied subjects. Perhaps the greatest problem which presses upon the teacher of the secondary school for solution, is how to make all his work so stimulate the intellectual life of the pupil that he will care to read and study when his school days are over. The formation of the reading habit is often a slow and difficult process, and it will tax the ingenuity of the teacher to supply the great variety of influences needed to arouse and nourish it. It is

only life that can beget life. The teacher whose own intellectual life has largely died out will have little influence in arousing interest and enthusiasm in the reading of good literature among his pupils. A lively personal enthusiasm in the subject is the first requisite for any substantial success.

There is a prevalent belief, strengthened by the sanction of such men as James Russell Lowell, Edward Everett Hale and William F. Poole, that the most important thing is to arouse in pupils an interest in reading fiction, and that if young people are only desirous of reading story books, they can easily be led to read something better—that the tendency of reading is upward and not downward. It is a pleasing theory and one widely held, but is it in accordance with the facts? I have not known in my own experience a single instance of a pupil over fifteen with a strong appetite for fiction and nothing else who could be brought to read and enjoy books of substantial literature not fiction. When the love of fiction has completely occupied the ground, the formation of the true reading habit is almost impossible. A great appetite for fiction can exist without the inclination or the ability to read any other kind of literature. The reading of good stories is helpful to young pupils in giving them a vocabulary and some comprehension of the varied circumstances of life and nature, but it will do little to help high school pupils form a taste for literature which is not fiction. I would say nothing against fiction. The appetite for it is natural and healthful, and no culture at the present day is complete without some acquaintance with English prose fiction, one of the most important intellectual products of the time. But the influences which lead most pupils to reading fiction are sufficiently strong. The best service the teacher can render in this direction is to guide into proper channels the natural impulse. His thought and effort should be directed to stimulating the interest of the pupils in other kinds of literature.

An important influence in the hands of a skilled teacher is the interest aroused in the regular studies of the school. In almost every class there are pupils to whom the subject appeals with unusual force, who have a special interest in it which craves more than is supplied by the text book. If this interest is properly satisfied, the pupil has made an encouraging beginning towards the formation of the reading habit. He has sought knowledge for himself and found the road a pleasant one. Reading must be voluntary if it results in the formation of a habit; and the habit will not be readily formed unless it

is on the whole pleasant. It is, therefore, of the greatest importance that the books to which pupils are first directed shall be interesting, shall be such as will leave a desire for something more. Many a pupil has had a growing interest destroyed by attempting to satisfy it with a dull book. Dulness is very often only a question of degree of mental development, and a teacher needs to be careful in recommending a book which he finds interesting to himself if it calls for mental power on the part of the reader. A certain amount of mental exercise is pleasant to the pupil; it gives him a sense of power. But it ought never to be so severe as to leave him with a sense of exhaustion and a disinclination for more.

A pupil can often be stimulated to read for a purpose who would otherwise have but little interest in reading. Hence it is a good plan to assign to different members of a class different topics upon which they are to read for the purpose of stating to the class the results of their reading. It is the practice of some excellent teachers to read to their classes various extracts in which they ought to be interested. But this method will need to be used with caution, for a pupil's power to listen intelligently seldom keeps pace with his ability to read. The capacity to listen is not cultivated in our schools as it should be, and seems to be decaying in society along with the practice of reading aloud. School exercises in composition can also be made a valuable means of creating an interest in reading by assigning subjects which call for some investigation and directing pupils to books which are in themselves attractive.

Pupils often care little for books because they know little about them, and it is well to increase their knowledge at every opportunity. Occasions are constantly arising in the class room when attention may be called to books of value and some indication be given of what may be found in them. The reading of good literature should seldom be urged upon pupils as a duty. It ought to be put before them as a privilege—a source of enjoyment. The fact that the great literature of the past is preserved because it can furnish the highest and most enduring pleasure ought not to be lost sight of. It is a good plan to have books to which frequent reference is made easy of access in the school room. There is a peculiar charm in an occasional glance at a book which may be the parent of a desire to read it.

The teacher should not try to direct the reading of pupils into too narrow channels. Here the present aroused interest in literature may be misleading. There is a tendency to confine a pupil to a few authors famous for style when perhaps the sense of style in his mind

is dull, or he may have little imagination and consequently little taste for imaginative literature. Such a pupil would find the books recommended to him uninteresting, and the few volumes which the teacher can induce him to read will not bear much fruit in a permanent interest in books. But this boy might develop a taste for science or biography or history which would be a stimulus to him through all his after life. It is not the amount of reading or the particular subjects upon which the reading is done, about which we need be most concerned in secondary schools. Our aim should be to arouse in the minds of our pupils a real interest in reading on their own account something that is worth reading.

English literature with the study of English authors has of late been receiving much more attention in secondary schools, and is a most valuable means of stimulating the growth of the reading habit. A mistake sometimes made is to spend too much time in the critical study of a small portion of some classic author. We are liable to attempt a close philological criticism when we ought to get over considerable ground and arouse as much of an interest as possible in the authors read. Thorough philological criticism belongs to advanced work, and secondary schools should not attempt advanced work while much that is elementary remains to be done. The primary aim of all literary study in secondary schools should be to arouse and cultivate a taste for good literature, which cannot be accomplished by a study of the niceties of philological criticism. In this respect the present mania for examinations has no doubt been detrimental. Appreciation and interest cannot be tested by an examination, and teachers are tempted to turn to something which will yield immediate visible results. Much of our work in English in secondary schools is taken up in a way that will show for scholarship rather than in teaching pupils how to read literature understandingly.

The school is by no means the only influence which will help in the formation of the reading habit. But in very many cases it is the most important. In this habit the teacher has a special interest, for it is vitally necessary to the preservation of the work he has done. The flood of newspaper and trashy reading which is thrust upon the pupil at every turn as soon as he enters into life will tend to weaken his mental fibre and prevent further growth unless there is some strong counterbalancing influence. This influence can be found in a hearty love for good books; and the inspiration of such a love should be a teacher's constant ideal.

OVERWORK IN SCHOOLS.—A FRENCH VIEW.

PRINCIPAL G. C. SAWYER, UTICA FREE ACADEMY.

A series of articles has recently appeared in the *Revue Internationale de l'Enseignement* treating of intellectual overwork and *sedentarity* in the French schools.

First appeared the Report of a Commission named by the Academy of Medicine to study this question, followed by lengthy discussions in that Body by eminent physicians and scientists. The report first submitted by Mr. Lagneau traced to the two causes above mentioned a large part of the diseases and physical defects among children such as myopia, consumption, cephalalgia, etc., setting forth that mental and physical infirmities in general showed themselves in a greater proportion among the boys and girls of the higher schools than among other young people. Mr. Rochard said there was no doubt of the need of a radical reform of the present system of education: that it is necessary to put an end to the kind of instruction by catalogue which touches upon everything without penetrating below the surface, with this encyclopedic education which overcharges the memory without developing the imagination, and leaves after it only fatigue and an insurmountable disgust for intellectual work. The schedule of studies should be compressed, and the recitation hours shortened to no more than eight hours a day for the older pupils.

The most severe critic is Mr. Peter, who spoke as a practising physician, in brief, as follows. Intellectual overwork proceeds from this, that in the affairs of the intellect the law of supply and demand is not regarded. Nature teaches us that in the mass of intellects those in the mean predominate. But programmes of study seem to be made with a view mainly to the gifted. But the gifted will always pass beyond your programmes, for they study not only without fatigue but with pleasure and for their own pleasure—they study as the bird sings, in obedience to a tendency, nay rather, to a need of their intelligence, a thirst for knowledge. For them intellectual work is the health of their brain. Others, the more feeble, will never master your programmes; I add that those in the mean will only master them at the pains and risk of always remaining diseased in brain.

The school-hygiene needs, equally, formation. On the pathologic side of the question Mr. Peter goes on at length to show the injurious results of overwork resulting in brain-fatigue, curvature of the spine, cephalalgia often ending in typhoidal states, and in tuberculosis resulting from, in addition to the above condition, impure air and sedentarity.

Mr. Colin doubted that overwork was the cause of the evils imputed; pupils suffer in these same ways without this cause. It is true that the slow and more feeble-minded are those who suffer from intellectual fatigue. But so long as that work is not found to be painful it is not injurious. The active, industrious spirit, which is fond of study, can not be prevented from work even beyond the common measure. They would suffer by being restrained, just as the others suffer from being constrained to do a less amount. Not only they would suffer personally, but as well science, art, industry also, because they are strong and are to become the first in their professions. What matter if they are a little paler, a little less vigorous than the others? It is not necessary that the savant, the artist, the administrator be built after the type of Hercules. What is needed is talent, and talent is neither acquired nor developed without great exertion, even in the best endowed. This overwork is fruitful, it is a salutary example for the masses who have a propensity to idleness. What should be combated is the overcrowding and constraint induced by too full programmes, which result at most in raising the nullities to the level of the most feeble mediocrities, which aims at making of the weak-minded an A. B. or an M. D., and thus one is added to the ranks of the learned professions, who would have been more useful as a carpenter or a mason. Yet, while making war upon the overwork imposed by a great part of school programmes, I do not mean to defend shirks. I pity those of moderate ability who are strained beyond their capacity.

One happy arrangement for relieving the mental strain and giving bodily exercise as well as training the pupil in mechanical aptitude is carried out where there is a workshop in an annex for occupations whose apprenticeship may be begun at an early age. Such I have seen and admired. Either after a recitation or at the close of the school exercises the children enter into a long apartment divided into compartments, each like a little workshop, with tools of carpentry, engraving upon wood or metal, moulding, &c.

In proportion as one goes on to the higher schools, notably the lyc  e, overwork increases in a geometrical proportion, and is so organized that it becomes difficult for the pupil to escape it. Its causes are always the same; programmes embracing a too great number of sciences and too extensive development in each of these. It is the system of intensive culture, good only up to a certain point for a soil of exceptional fertility. The pupil goes from one recitation to another; time is wanting for reflection upon what has just been set before him, the impressions made upon his understanding are feeble, they are confused from succeeding each other too rapidly, they are effaced by being superimposed the one upon another; the forces of the brain are exhausted, frittered away. However the studies be arranged with care, and with intervals between, the sum of work becomes excessive. The student, in course of this process, has neither the time to read nor to reduce his notes to order, nor to think or reflect. His memory, almost alone, this animal subordinate faculty, is put to service. The greater part of his other faculties remaining unemployed, his brain must become atrophied in the parts corresponding to the unused faculties. If those who are responsible for these programmes took account of the extension of the sciences, they would hesitate to give a place to many of them in a course of study because the cerebral capacity does not increase proportionately to this extension, and the amount of intellectual work cannot go beyond the limits long since attained.

The revision of our programmes, to meet these various evils, is no longer to be questioned. All are agreed as to the necessity. The present encyclopedic system is condemned by its results. The plan of concentration of the intellectual forces is to be substituted for their dispersion.

M. Perin was of the opinion that headaches, so frequent in student life, are frequently dependent upon ocular fatigue and overwork, a state of functional impotence, of which he cited curious instances.

M. Hardy compared the work of pupils with that of the employ  s in public or private offices, where they begin at nine or ten o'clock and stay until four or five P. M. with various interruptions, all demanding little brain-work, while school-pupils are actually occupied ten hours a day at least. Their work, too, is difficult, exacting a constant exercise of the mind. They have to acquire new knowledge, to apprehend abstract matters; their memory and intellect force are constantly exercised. Thus we notice more frequently

than formerly cerebral affections. For my part, not a year passes that I do not see several instances of those complaints that were very rare in our time, and which may be called "students' head-complaint." Why this excessive application? Because too many things are taught. They are to learn the French language, the French literature, one foreign modern language, Latin, Greek, History, Geography, Cosmography, Arithmetic, Geometry, Algebra, Philosophy, Logic, Chemistry, Physics, Botany, Mineralogy, Zoology. It would be shorter to say what is *not* taught. It is an encyclopedic education! Is it useful to keep up all these branches? I would mention as necessary to the instruction of French youth the French language, Latin, a little Greek, elementary mathematics, one foreign language, Geography, History, a little Philosophy. But I would prune from the programmes of secondary instruction the sciences, properly so-called, Chemistry, Physics, or I would at least reduce them to a small amount, while I would banish from the lycées Botany, Zoology, Anatomy, and Physiology. These sciences, which constitute part of the programmes of superior instruction, should be reserved for special studies in connection with individual aptitudes and especially with professional studies. Under the actual course of instruction the pupils of our lycées learn only some vague definitions of technical terms, which are of no use to them. Of what use is it that they know that atmospheric air is a mixture of oxygen and azote, that the pancreas serves for the digestion of fatty substances, that the spleen is a hematopoietic organ, and that the liver makes sugar? Here are some questions set as an examination for the baccalaureate.

"Enumerate the bones of the face."

"In what proportions do chlorine and hydrogen combine to form chlorohydric acid?"

"The nervous system of man; what is a reflect act?"

"What is the structure of the kidneys? What are their functions?"

With all these superficial acquirements, we have young men who know nothing or very little, but who think that they know, which is worse still. Besides, if you say that it is necessary that a young man should come out from the lycée knowing a little of everything, why teach the physical and biological sciences rather than law and architecture? In the course of his future career he will probably have need of some knowledge of jurisprudence, and it will be more useful for him to know how a house is built than to possess

some superficial acquirements in anatomy and physiology. To sensible people it is evident that too many things are taught our children; there ensues fatigue both of body and mind, and a useless fatigue, for in spite of this varied, complicated instruction, indeed, in consequence of this multiplicity of knowledge which is sought to be inculcated, after eight or ten years of study, our young people come out of higher schools knowing nothing. In view of these various inconveniences it seems to me that as physicians and fathers of families we should plead warmly in favor of the reform of public instruction and especially of secondary instruction.

M. Lancereaux.—In my opinion intellectual over-work is more rare than some of my colleagues seem to believe.

It is a mistake to attribute to this cause the greater part of the pathologic disorders observed in our students; and if some may be so imputed, it is no less to be recognized that the greater number come from hereditary tendencies, rapid physical growth, insufficient supply of pure air and of food, that is from defective hygiene.

I do not hold that overtaxing of the brain does not exist, but I cannot attribute to it myopia, anemia, deviation of the spinal column, and other ills for which Dr. Lagneau renders it mainly responsible. Intellectual overwork with us is met rather in girls' boarding-schools than in boys' lycées, on account of the too wide extension of courses of study, and the pretentiousness and blind vanity of parents of all conditions, who desire their daughters to have diplomas, without regard to tastes or aptitudes or the role they are to play in society. Indeed, the troubles referred to are mainly incident to final examinations or to those for admission to public schools.

M. Lagneau resuming the discussion:

In order to favor the manifestation and development of those special aptitudes which mark those of a higher order of intellect equivalents should be allowed for the subjects in required courses of study, without exacting an omniscience, which, as general as it is insufficient, is far from being the proof of intellectual superiority. The most of our young men and women at the approach of examinations too general, too encyclopedic, and, a result too much a matter of chance, give themselves up to excessive labor often prejudicial to their health. It is not only desirable that the extent of their examination be limited, but that these so general and encyclopedic examinations, this pell-mell accumulation of knowledge which makes little durable impression upon the intelligence, be replaced by notes

upon topics required weekly or monthly, by partial and frequent examinations which shall encourage regular, continuous study, and allow the intellect time to assimilate the facts successively studied.

M. Luys:—I see no connection between tuberculosis and over-brain activity.

I ask myself the question whether this intellectual over-work of our young people is as real, as injurious, considered in itself, as has been said, and, whether, on the contrary, the organic disorders considered *en bloc* are not rather imputable to unfavorable hygienic conditions and the school-regulations to which they are subjected. Let us study a little this brain, which is said to be overworked. According to Soemmerin the weight of the brain of a child at eleven years is 1046 grammes, at fourteen 1191 grammes, while the weight of the same adult is 1323 grammes. The weight in a girl of eighteen years is from 1030 to 1204 grammes, that of an adult woman from 1127 to 1238, while certain adolescent subjects, before the age of twenty, have acquired almost completely their cerebral development. The same appears from measurements of the head. Next allow me to show you the results of the examination of two brains of masculine subjects of different ages, one of sixteen, the other of thirty-six years. These brains have been preserved by the same processes of desiccation. See how much they resemble each other: the folds are in each clearly marked, the furrows indicate clearly the different portions of the surface, and, indeed, if one did not know beforehand the difference in age, I doubt very much whether by direct examination it could be ascertained which belonged to the mature man, which to the adolescent. The brain of the adolescent, with the exception of some few grammes in weight, is already equivalent to that of the adult, and in view of these anatomical data I do not see in what respect, from the point of view of purely intellectual labor, a reduction should be claimed of the course of study now in vigor. On the contrary, should not the aim of education tend necessarily to set at work an organic apparatus which develops regularly and luxuriantly at this epoch of life? We should demand of it, under penalty of forfeiture, the putting to use of all its aptitudes, and when we think how nearly the brain at the age of from sixteen to eighteen years of age, approaches, in its proportions, the brain of an adult, it would, in my opinion, be to fail in all the duties of our epoch not to concur in putting to its work this admirable instrument, and, under the pretext of forced labor and overwork, to en-

courage native idleness in many of those of average organizations for whom cerebral inactivity is ever the heart's desire tho' unavowed. If, indeed, we may trust the ingenious researches of Broca, do we not know that the brain of Parisians has been, as records show, in a constant progression, since the age of Philip Augustus, both in mass and volume; and that the cubage of the brains of our contemporary Parisians is superior to the cubage of the brains of the Parisians of the middle ages,—a very evident proof of progressive intellectual culture and of the intimate connection between the development of the brain and its regular exercise and the progress of civilization. Upon the point, then, as to whether the majority (I do not speak of exceptional cases) of our young people are really overworked under the operation of our present course of study I am of the opinion that, in the strict sense of the word, this is not the case. The fallacy consists in applying to childhood the picture of intellectual overwork so frequent in the restless period of the life of the adult. In the first place, there are the vacations, so much more frequent than formerly; and, next, do we not know that of these young people who are in the class-rooms most of them are much of the time only physically present at these exercises? They are only passably interested in the class-explanations, the beauties of the classics do not attract their close attention; they take merely a conventional interest in all this, and in them only the purely intellectual regions of the brain are in activity, while the emotional parts of their being and their conscious personality are wholly silent and unmoved. How much, in fact, does the cerebral activity of the child differ from that of the adult, in whom the emotional regions are always associated with the intellectual activities! The man who works in the strife of life does not do this without a profound participation of his utmost sensibilities; at each effort that he makes the intellectual excitation is duplicated with emotional excitation. Thus all the molecules of the brain are universally set in vibration. Here is the true overwork, the pathologic state of which account must be taken, and which daily experience shows is the first step which leads to chronic cerebral hyperæmia and, finally, to general paralysis.

Whereas the brain of the child makes only *partial efforts*. It is principally to his memory and imagination that in the classes in literature appeal is made; in fact, in various recitations, the intensive culture of the memory is set in activity. This seems to me very defective both on the ground of pedagogy and of cerebral hygiene.

As a result, the mental activity following a given direction, the mind is habituated to receive passively by a sort of imbibition, and retains in order to express finally by an unconscious reflex action. Thus the conscious personality does not take part, and the mental operations of judging, discriminating, etc., are mostly left inactive.

According to the preceding facts it would seem to follow that there is at present no disproportion between the sum of work required of our pupils and the sum of effort requisite to accomplish it, and that the question of overwork, as understood in this discussion, does not present the special dangers to which some have called our attention. Not but that there will be cases of pupils who will fall out of the line of march, through no fault of their own, but mainly through cerebral feebleness inherited from parents physically infirm. But I insist that it does not appear to me suitable to shorten or weaken the courses of study, and that it is necessary to think of the interests of future generations, and in view of the researches of Broca and keeping before the mind that if the human brain is adapted to a constant increase from age to age, it is the duty of educators of youth to cultivate its natural richness, to furnish it with all the new acquisitions of science, and not, from lack of appropriate culture, to allow these elements, which the human brain bears in germ, to run the danger of perishing.

M. Féréol: Intellectual overwork is in our lycées a rare, individual, accidental fact, which is usually to be explained by infractions of hygienic rules, by excesses of various kinds, or by hereditary or acquired predispositions. It is an eminently complex fact, of which we should not make the courses of study the scapegoat. Thus I protest against such simplification and such exaggerated conclusions as that it is needful at once to institute great reforms in the modes and programmes of instruction actually in force.

M. Trélat: I believe not so much in the faults of *surmenage* (overwork) as in those of *malmenage* (bad methods of work). I do not believe that the brain of the child is over-wrought by an excess of intellectual labor, but that this is ill-directed; the body, this primordial instrument of ours, is not enough exercised.

Much was said by different speakers as to the amount of time actually spent in study by the pupils of the secondary schools, the hours varying in the estimates from six to eleven and one-half hours per day. Six hours a day seem to be the school hours, as usually required, with one lesson to be learned out of school.

After further interchange of opinions, for the above is but a brief summary of these extended and interesting debates, the Academy announced the following as its advice:

The Academy of Medicine calls the attention of the public authorities to the necessity of modifying, conformably to the laws of hygiene and to the exigencies of the physical development of children and adolescents, the régime, as at present in force, in our institutions of education. It is of opinion, 1st. That the colleges and lycées known as boarding-schools should be situated in the country. 2d. That considerable grounds, well situated, with good exposure, should be reserved for play-grounds. 3d. That the recitation rooms should be improved in respect of light and ventilation.

Without occupying itself specifically with the courses of study, of which however it desires the simplification, the Academy insists particularly upon the following: 1st. Increase of hours of sleep of the young pupils. 2d. For all the pupils diminution of the time devoted to study and recitation, that is to say, to sedentary life, and proportional increase of the time of recreation and exercise. 3d. The absolute necessity of subjecting all pupils to daily exercises for physical training proportionate to their age, marches, running, leaping, movements prescribed and regulated, gymnastics with apparatus, fencing-lessons of various kinds, games involving trials of strength, etc.

HOW TO IMPROVE THE TEACHING CORPS OF PUBLIC SCHOOLS.

BY MORRISON I. SWIFT, NEW YORK.

Perhaps the most important educational problem of the day is how to obtain a better class of teachers for the public schools. Good buildings and text-books and apparatus and system are helps, but they are insignificant in comparison with the personal quality of the teacher. That persons of fine texture may be led to choose, and adhere to, this calling, the prizes that are offered must be as attractive as are those in other pursuits for the same grade of ability. But they need not be of precisely the same kind. A student wishes fair financial returns; he wishes to know that, as his services become

more valuable, the returns will be fairly increased ; but a compensation that is worth more to him than material profusion is some leisure for self-development, and exemption from excessive drudgery. Nearly all common school teachers who are faithful to their duties are overworked. Their lives are also monotonous. They are monotonous because too much energy is absorbed in their routine tasks and too little remains to give zest to other and fresh and recreative researches. The teacher is "fagged" at the end of school hours, and what time he or she does not devote to correcting papers, or looking over the next day's lessons, must be spent in perfect relaxation. This is not an attractive life, and even much better salaries than are now paid would not induce people of the best talent to enter it, unless necessity, or the reservation that it should be only temporary, or the hope of learning to do the routine like an habituated machine, without exhausting wear, compelled or encouraged them to do so.

It was once thought economy to work horses out rapidly and then replace them with fresh ones. A fallacy regarding animals that has long since exploded has not yet been wholly abandoned in the case of men and women. If it cannot be absolutely said that a tired teacher is a poor one, it can be said that he is poorer than he should be, by just the degree of his weariness. If the essence of good educating were lesson-drill alone, the loss sustained would not be so great as it is. The chief injury comes through the deterioration of that personal quality of the teacher, which is more valuable and vital than any thing else.

There is a better way of meeting this difficulty than the increase of all salaries without any corresponding requirements. The plan of allowing university and college professors one year in seven for the uninterrupted prosecution of study, works admirably in higher education. The question is, Why can it not be adopted for all grades with equal, or greater, advantage? Possibly the years, as well as the days of a man's life, are rhythmic. Possibly we ought all to rest, or change, for the time, our manner of life, every seventh year. At all events for self-protection the community should permit and require its teachers to lay aside the burden of routine work periodically, and for a year to reflect and grow, to acquire new ideas, to obtain the recuperation of absolute change. For six or seven hundred dollars one could easily spend a year abroad ; for four hundred or five hundred the year could be passed at some educational

centre in this country. Of course those accepting the year should be required to conform to certain conditions to ensure the best use of the time and money. With a certain fund set aside for this purpose one teacher could be away each year, but none should be eligible to the use of it who had not taught a determined number of years in the school providing it. This number might be six or seven, and if, at the time of establishing the plan, several teachers had already reached or exceeded the limit, precedence could be given in turn to those having taught longest, and in case of a tie, to the one in the higher school.

The advantages of the plan are manifold. Public school teaching can hardly be called a profession, because so few seriously fit themselves for it and pursue it as a life work, and every one knows how disastrous to the educational interests of the country this constant progression and disappearance of teachers is. Many very able persons teach in the public schools, but they escape if they can, and as soon as they can, and usually it is just when their experience is beginning to make them more than commonly valuable. This will continue unless the work is made more attractive. But now that we have begun to realize the simplicity of putting all the best teachers at the end of education and letting the less skillful and less philosophic manipulate its delicate beginnings, we are not willing to have it continue. The monotony and too severe work and small salaries have had their natural consequences, and our only hope is to replace them with something better. Such would be the prospect of a vacation year for research. A teacher's health requires this, and it is questionable if any acquisition or pedagogical aptitude is of as much importance to the scholar as the teacher's health. The profession of teaching would gain not a little in dignity by the adoption of this plan; a better class of persons would be attracted to enter it, and of the better ones already in it a larger proportion would stay. Many would at least remain to earn the year of study, thus giving four or five of the best years of their lives to the common schools. All their work would be of finer quality because there would be incentive to private work, which they could look forward to building upon effectively in their leisure year. Of course this would reflect itself in their daily teaching. The stimulus of progressive teaching and expanding personality is incomparably superior to that of one who stagnates for want of some promise and opportunity in the future.

The teacher might return to his or her position at the end of the year, or he might make this the occasion of entering upon more specialized work, prolonging, if he desired, the period of study at his own expense. If he returned it would be with improved quality, and the pupils and community would reap a new benefit; and as another similar rewarding year would lie before him his efforts would not flag. If he preferred to specialize more narrowly, his time in the public school would not have been lost with reference to this end. In this way, too, a closer union of the various grades of education would be effected. The existing spanless gap between the public school and the college cannot be defended excepting on artificial grounds. There is no reason why a teacher should not pass from a public school to a college chair, and every reason why he should. The break that now occurs between the two has spoiled many a possible specialist, because he was compelled to start in the public school and had not the time or means to stay out of the country several years to let it be forgotten. The method suggested would not only lead him to continue his private studies, but it would enable him to pursue them for a time uninterruptedly. A young man or woman graduating from college at the age of twenty-two and teaching six years would be both financially and intellectually well prepared to prosecute a university course. Many arguments may be advanced showing that it is the best plan, where it can be intelligently pursued. Teaching is learning. It is safer to put a mature man in a university, than a comparatively untried one. It is one of the seriously deplorable results of our disorganized way of training teachers that many of them instruct for the first time when they are given a college appointment. They then bring, without insight or discrimination, all the requirements that they have been for years training themselves to meet, upon comparative beginners, and either injure or ruin the students, or occasion a reaction against themselves, which sometimes weakens their influence for years, and not infrequently sacrifices a brightly promising career. To put a raw professor, just from the university, upon college boys is a dangerous proceeding, and to be avoided, if possible, for the sake of both. There would be far more inspired teaching in public schools than is now the case if such advancement from school to college were possible.

For both town and city there could be no better way of spending a few hundred dollars yearly. A town often becomes intellectually

torpid and needs inspiration from without ; if each year or every other year brought home an investigator, there would be no stagnation. The education of a town is frequently out of harmony with the advancing education of the country ; some places, for example, fill the public school positions with home talent, and the local ideas and prejudices are bred in and in. If any one goes away to school or college from such a place he finds himself at a disadvantage. Many bright young people never seek to broaden their culture in advanced schools at all, because the town of their birth is so backward and their home friends appreciate the advances of the outer world so little. But money spent in placing children abreast of the world is, of all money, the best spent. Many men slave away the fairest years of their lives to acquire property for their children, because they think this the best way to provide for their happiness. But they blindly leave a great gap open at which floods of happiness escape. Through incompetent training in childhood or youth the lives of thousands of persons are blighted, and happiness is forfeited. Many a father would gladly pay a few hundred dollars more yearly for the safe education of his own child, and surely communities could afford to do it for the sake of their hundreds of children. The employment of an inefficient teacher is like having a poor doctor. Some money may be saved at the time, but if one is handicapped for life by intellectual, or physical, or moral invalidism, it is a costly saving.

It is better to expend the needed amount of money in the manner specified than to apply the same sum to a direct increase of the teachers' salaries. For the increase could not be large, at best, and it would neither correct the evils that are so deeply felt, nor bring the positive advantages that must follow from the other method. Teachers must have an occasional extended outing, or fall behind their best selves, and recognition of this organic need of the human being, and provision for it, should be effected in the educational system.

THE PHONETIC METHOD.

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Within the last six years there has developed in France, Germany and Scandinavia, a method of teaching modern languages which by some has been called the phonetic method, because it is based on the application of the principal practical results of the science of phonetics. Nothing would give a better idea of this method than the programme of the Phonetic Teachers' Association, which, with its seat in Paris, counts many members in Germany, Sweden and Norway, and advocates the following six pedagogical principles:—

1. The first thing to be studied in a foreign language is not the more or less antiquated language of literature, but the spoken, everyday language.

2. The teacher's first care ought to be to make his pupils perfectly familiar with the *sounds* of the foreign language. For this purpose he will use a phonetic transcription, setting aside entirely the traditional spelling during the first part of his course.

3. Secondly, he will teach the most usual *phrases* and idioms of the foreign language. His pupils, therefore, will study connected texts, dialogues, descriptions and stories, that are to be as easy, as natural and as interesting as possible.

4. He will teach grammar inductively at first, as corollary and generalization of the facts observed in reading; a more systematic study will be reserved for the end.

5. As much as possible he will connect the expressions of the foreign language directly with the ideas and other expressions of the same language, not with those of the mother-tongue. As often as he can, therefore, he will replace translation by object lessons, lessons on pictures and explanations given in the foreign language.

6. When, later on, he gives his pupils written work, this will consist, at first, of reproductions of texts already read and explained, then of stories told by himself orally, later on, perhaps of free compositions; translations and exercises will be kept for the very end.

The last four paragraphs of this programme advocate nothing very different from our natural method, the adherents of which

ought to feel encouraged by seeing the educators of the old world enlist on their side. It is curious to note how different from ours has been the road by which our European colleagues arrived at the same goal. We were led to the natural method primarily by the practical consideration that the end had in view by most of our pupils, was to learn to *speak* a foreign language, and secondarily by the conviction that no language can be mastered to any satisfactory degree without being spoken, as is proved by the poor results that have attended the study of Latin ever since this language ceased to be spoken in the schools. Such mere practical reasons would never have induced the university-bred teachers of Germany to depart from what they considered the only dignified method of teaching a language by grammar-rules, paradigms and translation of detached sentences. The impulse to change came, as it had to come, from the universities where the theories about language had undergone a radical change. The humanists used to look upon language as something fixed by laws, from which no deviation was allowed, a conception of language, which, though long dead, still seems to haunt the minds of those who turn to grammar and dictionary instead of accepting the best usage as highest authority on any disputed point of language. But usage ever deviates from the rules and norms of the past, and as soon as the modern languages came to be studied, the idea of language as something growing and constantly developing forced itself upon the minds of scholars. First the history, therefore, of language was studied, then its present life as it shows itself in the different dialects, until linguistic science in its latest phase starts in its investigations from the view that each human being speaks his own individual language, always more or less at variance with the common standard of the community in which he lives. The *spoken* language being thus considered the origin of the *written* language, its study was urged as of prime importance from the purely scientific point of view, until finally the same practical considerations, that we have seen at work in this country, have led a great many earnest teachers to the conviction that the living speech is to be made the starting point of all language teaching.

This reform movement may be dated from the first appearance in 1882, of Prof. Vietor's *Der Sprachunterricht muss umkehren*. This pamphlet, published under the pseudonym *Quousque Tandem*, was a vigorous attack on the grammatical or classical method of teaching languages, but like Franke's *Die praktische Spracherlernung*, which

came out in the same year, it contained at the same time suggestions that could not remain unheeded, on the way in which a reform of linguistic instruction ought to be brought about. Entirely new among these was the proposal embodied in the second paragraph of the programme cited above, that the results of the new science of phonetics should be used in the class-room, in order to correct that wretched pronunciation of the languages taught, which was both the disgrace and the weakest point of the old method.

The great stress it lays on pronunciation is the most prominent feature of the phonetic method, and its foremost and best claim to the attention of all teachers who understand the practical difficulties of teaching and acquiring a good pronunciation of foreign languages. For the acquisition of sounds the natural method is as useless as the old grammatical method. It may be that a child can learn them by mere imitation; with older pupils, however, whose organs are less flexible, a systematic and complete study should be made of them. This conviction would force itself readily upon any one acquainted with the science of phonology. Indeed, if with a knowledge of the formation, combination and transformation of articulate sounds, the born *deaf and dumb* have been made to speak intelligibly, what limit can there be to the acquisition of foreign sounds by those who can hear and have all their organs of speech well developed?

A few instances of the application of phonetic knowledge to language-teaching will show its usefulness. There is hardly a French or German grammar now in use in this country, that does not explain correctly the mechanism of the formation of *ü*. "Place the tongue as if to sound *ee* in *see*; round the lips as if to sound *u* in *rule*." But what is the practice of the teacher, when he hears his pupils mispronounce this sound again and again? Does he try to correct them by repeating the sound to them, or does he enforce the rule, "round the lips"? The phonetic method would suggest the latter expedient and be sure of an immediate good result. Of the German *ch* on the other hand, there is no satisfactory explanation in any of the grammars before me. If they treated the chapter on pronunciation phonetically, they would establish from the outset the difference between the consonants *s, f, sh* and *z, v, zh*, which consists in the absence in the former of the element of voice, which to the latter is added by the contraction of the vocal chords, while all the other articulating organs remain in the same position for the sounds thus differentiated. This is all the difference there is between the Ger-

man *ich* sound and the English *y* in *you*, and to pronounce a correct *ch* all one has to do is to devocalize *y*, which cannot be difficult, after the devocalizing process has been practiced a little on the familiar English sounds. By these two examples I have attempted to show how far the phonetic method can and, perhaps, ought to be adopted by every teacher who is alive to the exigencies and difficulties of his profession.

But there is another important feature of this method, that has to be considered, namely, the use of phonetic texts. "In languages, the orthography of which differs considerably from pronunciation, the latter ought to be reproduced in writing by means of conventional signs, which represent the sounds in a fixed and invariable manner." This point is insisted upon most urgently by the reformers in Germany as well as in Sweden and France. "As for the usual spelling, it has to be learned, since usage requires it, but only after the spoken language is known sufficiently well."

One obvious advantage of the use of phonetic writing is that the pupil, unhampered by intricate rules of pronunciation, can give his full and undivided attention to the correct articulation of unfamiliar sounds or combinations of sounds. Only the most thoughtless pupil, for instance, forgets entirely, that there is something unusual in the pronunciation of the French word *bataille*, but before he has been able to recall the combination *ille=y* and to reason out, that consequently the *a* retains its sound of *a* in *far*, the swing of the sentence will have led him to pronounce *batale*, whereas if he had seen a phonetic *batây* in his book, he could have concentrated his efforts on the correct articulation of the unfamiliar *y* final, which does not occur in English.

It has been objected that the phonetic method teaches two spellings or two alphabets, only one of which can be used generally. But do not the pronouncing dictionaries, by putting the pronunciation in parenthesis, really require the knowledge of two alphabets also? The difference is, as one of the phoneticians puts it. They say first: "this is the spelling" and then: "this is the pronunciation," whereas we say first: "this is the pronunciation" and only afterwards "this is the spelling."

The question will be asked now with this phonetic method: How does a teacher proceed to start a class in a new language? As a very instructive answer I will condense Max Walter's article in *Victor's Phonetische Studien* on *Der Anfangsunterricht im Englischen auf*

Lautlicher Grundlage, in which he gives a detailed account of his first eight lessons with a class of beginners in English at the *Realschule* in Kassel. As the native dialect of Kassel does not distinguish between *voiced* and *voiceless* consonants, it was Mr. Walter's principal task to explain this difference and to practice the correct pronunciation of the parallel sounds *f, v; s, z; sh, zh, t, d; k, g*; first in German, then also in English words, so as to show the difference that might exist in some cases between German and English articulation. After that the difference between *th* in *thin* and *this* was perceived at once and even these sounds, that Germans generally think so difficult, were easily mastered when the manner of their formation had been simply but clearly stated. All English consonants were then arranged in a table according to the place and manner of their formation. For the vowels the native dialect offered no difficulties that had especially to be guarded against. Though in the course of this explanation a general idea of the organs of speech and their functions had been given, this whole preparatory training had not taken more than two hours and in the third recitation Mr. Walter introduced his pupils to the English language itself by means of Thomas Moore's *Evening Bells*. After reading the poem slowly to his class, translating it into German and explaining whatever was not at once clear in the contents, he began the practice in pronunciation by repeating the title, requiring his pupils to point out the sounds which they recognized. All new sounds or shades of sounds were carefully explained, then the pupils had to repeat after him, till they were perfectly familiar with the correct articulation of every sound. In the same way he proceeded through the whole poem, taking the words one after another, practicing them first singly, then together with the others, so that the English intonation of sentences was learned as well. Not until every pupil knew the lines by heart with the correct pronunciation were they written down, lest the spelling might react on the pronunciation. Mr. Walter considers the eight hours devoted to the twelve lines of this poem well spent. All English sounds had occurred and had been practiced, the foundation of a good English pronunciation had consequently been laid. Mr. Walter in these lessons did not make use of phonetic spelling, for the reason principally, that text books of that kind were not available at the time of these experiments. I will quote therefore Paul Passy's account of Mr. Western's method at the college of Frederiksstad in Norway. "Mr. Western first gives his pupils a

simple but accurate lesson on the sounds of the foreign language; then he gives them an easy sentence which he writes on the black-board in phonetic characters, *ai liv bai mai pen*; he explains it, then has it conjugated: *yá liv bai yur pen*, *ká livz bai hiz pen*, etc., but without ever having the verb inflected alone and avoiding translation into the mother tongue. "Now let us go on to the negation," he says then. "It is formed by putting *dont*, in the third person *doeznt*, between the subject and the verb: *ai dont liv bai mai pen*, etc.," with a new series of exercises on negative sentences. Then comes the question. "You put *dú*, in the third person *doez*, before the subject: *dú ai liv bai mai pen*?" Then Mr. Western changes the sentence a little (*ai liv bai mai nádl*, etc.,) and soon his pupils are in possession of a much more profitable knowledge of the language, than if they had spent hours in learning paradigms and writing exercises with the help of the dictionary.

Another question. Has the phonetic method been attended with good results in practice? It would seem so from the fact, that the number of its adherents is constantly increasing. The Phonetic Teachers Association founded in January 1886 with 14 members now counts over 170. Its organ *Le Maître phonétique* printed 1000 copies of its last issue. The Scandinavian Association for the reform of linguistic instruction, which adopted the name of *Quousque Tandem* in memory of Prof. Vietor's pamphlet, counted over 80 members a few months after its organization in August 1886 at the Philological Congress in Stockholm. There is no organization of this kind in Germany, but to judge from the numerous pamphlets and articles, that are published on this subject, the idea of this reform has taken firm hold of the minds of German language teachers. A number, like Mr. Walter, have published their way of proceeding with this method and all are satisfied with the results obtained. To quote an instance. Mr. Walter's success has been such that the Prussian government has advanced him to the Wiesbaden Realgymnasium, there to carry on his experiments on a larger scale. English as well as French Readers in phonetic characters have been published for the first instruction in these languages. The different Philological Associations have devoted a considerable portion of their time to the discussion of the phonetic question at the conventions in Giessen 1885, in Hannover 1886 and in Frankfort and Zurich 1887. The best witness to the success of the phonetic method is Mr. Paul Passy who in a pamphlet entitled *Le Phonétisme au congrès philolog-*

ique de Stockholm en 1886 (to which, by the way, I am indebted for the most valuable part of this article) speaks of his own experiments in this way. "Thanks to exceptionally favorable circumstances, I have been enabled to try in France the most complete experiment, that probably has yet been made of teaching a foreign language by means of a phonetic transcription. As professor of English at the Normal School in Auteuil since 1878, I became more and more impressed with the difficulties which the English spelling puts in the way of the learners and the useless trouble it gives the teachers, and I resolved to write a little book in which English should be taught at first solely by means of a phonetic alphabet. I applied to Mr. Pitman and with his help published in 1882 my *Anglais parlé*. Though the book and the method pursued in it were imperfect as yet, the success went beyond all hope. At the end of one year the class which had studied only one year with this phonetic text, knew as much about pronunciation and colloquial language as the pupils of the third year, who had used the usual text-books, and when two years later they went up for their examinations, seven of them passed, whereas before I had had great difficulty in getting one pupil a year through the special examination in English, which up to that time had been considered much above the level of the school. And curiously enough, while they had some trouble to get used to reading the non-phonetic texts, the acquisition of the ordinary spelling caused them no difficulty; they learned it without ever being taught it. The same phenomenon, which I cannot yet explain to myself, has since repeated itself every year and this very day, my pupils of the third year, who have written the usual orthography only for a few months, would certainly make less mistakes in a dictation exercise, than pupils of a *lycée* who study it from the beginning." Mr. Passy's success has induced the superintendent of the Paris schools to have his method tested by giving the English instruction in three common schools of that city to members of the Phonetic Teachers Association. "It is needless to point out the importance of this experiment," says Mr. Passy, "if it succeeds, our cause may be said to have triumphed in France."

In conclusion I ought to mention the use that has been made of phonetic texts to teach English children to read English. Mr. Pitman, the well-known inventor of Phonography published his Phonetic Readers more than forty years ago, but they have been little used in England. This method has been employed with great suc-

cess, however, in St. Louis, Mo., where since 1881 none but phonetic Readers have been allowed in the public schools. Elsewhere, no doubt, efforts have been made in the same direction, of which it would be interesting to hear. Teachers of foreign languages would greet the use of the phonetic method in this branch of instruction with delight, for nothing would help them more than to get pupils with some previous phonetic training, and that is exactly what the mere use of phonetic Readers in their first instruction in reading would give them, a phonetic training which, valuable in itself, would assist greatly in the acquisition of foreign languages.

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1. *Annals of Mathematics*. University of Va. \$2.00.

A good journal but rather above the reach of the average high school teacher. There is no good elementary journal of mathematics in English.

2. *Mathesis*. Ghent. Belgium. 9 frs.

A capital journal established in 1881. Portions of every No. are elementary in character. Of late it has been rich in papers upon the modern geometry of the triangle.

3. *Journal de Mathématiques élémentaires et spéciales*. Paris. 15 frs.

4. *Zeitschrift für mathematische und naturwissenschaftliche Unterricht*. Teubner. Leipzig. 12 mks.

The last is well worth the attention of readers of German, as shown by its title.

BOTANICAL WORKS.

PROFESSOR V. M. SPALDING, ANN ARBOR, MICH.

FLORAS.

Gray. *Manual of Botany*. Ivison, Blakeman & Co. New York. 1869.

Chapman. *Flora of the Southern United States*. 2d ed. Ivison, Blakeman & Co. New York. 1883.

Coulter. *Manual of the Botany of the Rocky Mountain Region*. Ivison, Blakeman & Co. New York. 1885.

Gray. *Flora of North America*. (In progress).

Gray's *Manual* is commonly bound with the "Lessons" in one volume. Dr. Gray's final revision of the latter has just been published under the title *Elements of Botany*. Ivison, Blakeman & Co. 1887. \$1.00.

LABORATORY MANUALS.

Arthur, Barnes and Coulter. *Plant Dissection*. Holt & Co. New York. 1886.

Bower and Vines. *Practical Botany*. Parts I. and II. Macmillan & Co. London. 1885 and 1887.

Strasburger and Hillhouse. Practical Botany. Sonnenschein. London. 1887.

These three manuals are of the utmost value as laboratory guides. The first is the simplest and, on the whole, most suitable for beginners. The last is most complete and gives the modern methods of work with such clearness and detail as to render it indispensable in every botanical laboratory.

STRUCTURAL AND PHYSIOLOGICAL.

Gray. Structural Botany. (Revised ed.). Ivison, Blakeman & Co. New York. 1879.

Goodale. Physiological Botany. Ivison, Blakeman & Co. New York. 1885.

Bessey. Botany. (Last edition). Henry Holt & Co. New York.

Vines. Physiology of Plants. Cambridge. University Press. 1886.

Sachs. The Physiology of Plants. Trans. by H. Marshall Ward. Oxford. Clarendon Press. Macmillan & Co. 1887.

Duchartre. *Éléments de Botanique.* Paris. 1885.

Van Lieghem. *Traité de Botanique.* Paris. 1884.

Of the works under this head Bessey's is the least expensive and will be found to cover the ground in a satisfactory manner. With Gray's Structural and Goodale's Physiological Botany one is better equipped for work, inasmuch as the whole general subject of plant structure and physiology is ably and clearly presented in them. Sachs' Lectures on the Physiology of Plants is exceedingly valuable and should be purchased if possible.

MORPHOLOGICAL AND SYSTEMATIC.

Goebel. Outlines of Classification and Special Morphology of Plants. Oxford. Clarendon Press. Macmillan & Co. 1887.

Luerssen. *Handbuch der Systematischen Botanik.* Haesel. Leipzig. 1879.

This work of Luerssen is the most useful general treatise, for the ground covered, with which I am acquainted.

DICTIONARIES.

Lindley and Moore. The Treasury of Botany. Longmans. London. 1874.

Britten and Holland. A Dictionary of English Plant Names. Trübner & Co. London. 1886.

CRYPTOGAMIC BOTANY.

Eaton. Ferns of North America. Cassino. Boston. 1879.

Lesquereux and James. Mosses of North America.

Farlow. Marine Algæ of New England. Washington. 1881.

Tuckerman. North American Lichens. Cassino. Boston. 1882.

Pasteur. Studies on Fermentation. Macmillan & Co. London. 1879.

DeBary. Comparative Morphology and Biology of the Fungi, Mycetozoa and Bacteria. Oxford. Clarendon Press. 1887.

The list of works on Cryptogamic Botany might be greatly extended. Numerous references to the literature of the Algæ will be found in Farlow's work mentioned above and to that of the fungi in DeBary's treatise. For other references consult Luerssen's Handbuch.

GENERAL.

Müller. The Fertilization of Flowers. Macmillan & Co. London. 1883.

DeCadolle. Origin of Cultivated Plants. Appleton & Co. New York. 1885.

Kerner. Flowers and their Unbidden Guests. Paul & Co. London. 1878.

Masters. Vegetable Teratology. Hardwicke. London. 1869.

Darwin. Insectivorous Plants, and other works. Appleton & Co. New York. 1875 and later.

Müller's work on the Fertilization of Flowers gives references to the immense and increasing body of literature on this subject. Kerner's work is hard to get, but is a most charming little book. All of Darwin's books should have a place in such a list.

CURRENT LITERATURE.

The Botanical Gazette. Crawfordsville, Ind. \$2.00 per year.

Bulletin of the Torrey Botanical Club. New York. \$1.00 per year.

Annals of Botany. Oxford. Clarendon Press. One guinea per volume.

The Botanical Gazette is a live, progressive journal, and just what one needs to help him keep abreast of progress in the botanical world. The Torrey Bulletin covers a somewhat different portion of the field and would be quite as hard to spare. The Annals of Botany is a new periodical of a high order, with original monographs, criticisms of current literature, etc.

WHAT SHALL THE STATE TEACH?

Through the kindness of some one whose name is unknown to us, we have received a paper read before the Commercial Club, of St. Louis, last December, by Frederick N. Judson, Esq., President of the Board of Public Schools of St. Louis. The paper is earnest in spirit, thoughtful, and entirely free from any attempt to glorify public education beyond what is its due, on the one hand, or any thought of sneering at its importance on the other. We do not remember seeing in any similar paper a more gratifying purpose to look at the question entirely on its merits or a more dignified and temperate setting forth of the conclusions arrived at.

After announcing his subject more specifically as "The Rightful Limits of Instruction in Schools Maintained by the State at Public Expense." Mr. Judson says:

"The rightful limits of public expenditure for any purpose are not necessarily the limits which are imposed by the positive law of the State. The rightful limits, as I understand them, are those which are just, equitable and proper in view of our conception of the true relation of the individual to a free State, whether or not that conception finds complete expression in the sanction of the positive law."

"Clearly education at public expense does not rest upon any natural right of the child to receive such instruction from the State, nor upon any natural right of a parent as a member of organized society to demand such expense from any such society. * * * * * The people support the government and not the government the people."

Having thus laid down these general principles and quoted from the Missouri constitution to show that schools in that State are maintained by law, because a "general diffusion of knowledge and intelligence is essential to the preservation of the rights and liberties of the people." Mr. Judson proceeds as follows:

"In other words, the performance of the duties of citizenship in a free government requires intelligence among the people, and therefore, to insure the safety and perpetuity of our popular institutions, schools are maintained by the State. They are the nurseries of citizenship. The status of citizenship in a free country implies correlative rights and duties. The individual is presumed to know the written law and, directly or indirectly, must participate in the administration of the government. Therefore, the public safety requires that he must be able to read the law, and have at least the fundamental knowledge which affords him the means of fitting himself to perform such duties.

"Our free institutions are founded for ourselves and future generations. It is to insure their *perpetuity*, that the Constitution requires the maintenance of free public schools. The rising generation is to be so educated that it may be proof at once against the tyrant and the demagogue, and that an active, vigilant public spirit may be fostered, without which no popular government can long endure.

"It is obvious that with this basic conception of the position of the individual in a free State the primary responsibility for the education of children rests with the parents themselves. Education in its broadest sense, the fullest development of the capacities of the individual as a human being to play his part on the stage of life, the State does not and cannot assume. Milton defines what he means by education in these words; 'I call a complete and generous education that which fits a man to perform justly, skillfully and magnanimously all the offices, both public and private, of peace and war.' Theories of education in this broad sense have been the discussion of philosophers in all ages, as the plastic mind of childhood has ever seemed to offer the ready means of regenerating the world.

"I am aware that there is widely prevalent a radically different view of the relation of the individual to organized society, and of the rightful extent of governmental interference with the life of the citizen. Some hold that there is no rightful limit to such interference, that any purpose deemed proper by the majority for the public welfare, or for the greatest good of the greatest number, is a lawful subject of public expenditure, to which the individual taxpayer may rightfully be forced to contribute, in absence of legal limitations. Thus has been declared in this city by highly respectable citizens in public convention assembled a formal approval of a policy which in effect makes the public school funds raised by taxation a grand gift fund, which the School Board may expend for the purpose of 'popularizing' the schools; that is, inducing parents to send their children to the schools."

"Organized society in a free State provides for education not as a natural right, on the one hand, for a citizen to demand for the children whom he has brought into the world, nor on the other hand, is it a charity for the relief of the citizen's necessities. * * * * The State looks upon the child, boy or girl, only as a future citizen in a free State, to be bound by its laws, to participate, directly or indirectly, in the administration of the government, and by and through whom its free institutions are to be perpetuated for future generations."

Starting with these ideas which seem to us incontrovertible, Mr. Judson proceeds to state certain general principles which he thinks must be recognized as controlling the subjects and methods of instruction appropriate to a public school. He does not attempt to discuss these subjects and methods in detail, and only mentions two or three in order better to bring out and illustrate the principles enunciated. Like all the rest of the paper, this discussion is admirable, and we cannot forbear quoting.

"Thus it is clear that the subjects taught in schools conducted at public expense should include those of general utility, common to the whole community. It is obvious that no special or private interests, and no distinction of class, sect or nationality can be recognized. In determining what studies should be taught, we

are confronted with the practical limitation, with which educators have struggled in all ages. In our public schools this limitation becomes of the gravest importance, as the school life of the great majority of the children is by necessity reduced to a few years. The problem then is to make the best possible use of these years with studies suited to the child's comprehension. The question is a relative one; involving not the absolute value of any particular branch of learning, but its relative importance, compared with other subjects in view of the shortness of the child's school life, and the actual conditions of the life before him.

"It is undoubtedly also true that those entrusted with the application of a limited income, for public education, must determine the relative importance of the different demands therefor, if such income is insufficient for all, and in such determination the paramount claim must be given preference. If such income is insufficient to provide an elementary education in the fundamentals for all, clearly it is wrong to devote any part of such limited income to give exceptional advantage to the few."

Mr. Judson touches very briefly upon the subject of secondary education at public expense, and here again he is just as temperate and just as unassailable as in the other portions of his paper. He makes no attack upon secondary education at public expense, nor does he offer himself as its champion. He sees the folly and uselessness of trying to sneer at or cry down an institution as strongly entrenched in popular favor as is the public high school. On the other hand, he clearly recognizes the danger which in time may come to our high schools through the extravagance of their injudicious friends. His position seems to us, while not the popular one, to be the true one and the one which must eventually prevail.

"The rightfulness of the expenditure for high and normal schools is still more seriously called in question, and by many warm friends of public education. It is urged that while the State may rightfully maintain schools for education in the fundamentals of knowledge and in such other studies as may appropriately fall in a grammar school curriculum, yet that instruction should stop where the conditions of life compel the great mass of the children to commence the work of life, and that such higher education as the parent may desire for his child, is a matter rightfully of individual and not public expense. It must be confessed that the reasoning of these objectors is not without weight. Clearly the higher education, if maintained at all, must be an aid of, and in furtherance of, the purpose of the elementary schools where the masses can receive their only education. To abridge necessary elementary school accommodations in any degree in order to maintain the higher education is of course out of the question.

"I am induced to think that on a proper basis a high school, if public funds permit and there is no curtailment of elementary education therefor, may be rightfully maintained on the further ground, that the opportunities there afforded may be a stimulus to the grammar school system, and that the public may justify a small expense in the advanced education of exceptionally qualified pupils. But a very high standard of qualification should be exacted (far higher than that now exacted), so that this exceptional education should be a signal reward for exceptional merit.

"In the school system of Prussia, as I understand, while the education corresponding in the main to that of our grammar schools, is not only gratuitous, but compulsory; in the gymnasias, or high schools, a tuition fee is charged, omitted only in case of indigence. We would modify this system by giving the higher education as a reward for exceptional merit."

This seems to us sound philosophy. It is a fact which we cannot deny, though we are not proud to own it, that not unfrequently our free high schools harbor pupils entirely unworthy of free education at the expense of the State. Said a parent to us not long ago in the presence of his boy whom he was bringing to the high school for the first time. "I want my boy to have an education so that he won't have to work. I didn't have any education when I was young and I have had to work hard all my life. Now I want my boy to have an education so he won't have to work." It is safe to say that seldom does a boy brought to school with such purposes justify the expenditure made by the public for his education. He proposes to get along without work *now* in any case. We can call to mind many such cases. A boy remained in our school seven terms and at the end of that time, owing to persistent idleness and shirking, he had not accomplished three term's work. It is safe to say that he had occupied ten times the strength and attention given by the teachers to any diligent boy in school. Yet for nearly four years the city had been providing him, at public expense, instruction for which he did not care and which he would not accept.

The free high school is a thing which has become fairly established in this country. Continually on all sides fierce attacks are made upon it, yet in face of its foes and under their bitterest denunciations it grows in popularity where once established and is continually coming into existence in new places. It has evidently come to stay. Any attack upon it is at once resented by the people at large. No man has yet won his way to popularity by opposing secondary education at public expense. Every year some oppressed citizen so rich that his taxes seem to him an enormous burden, makes a great outcry, but it floats away on the wind practically unheeded. Still the high schools grow and multiply. There may sometime come a reaction. It has not come yet.

Nevertheless we think the time will eventually come when the privileges of the public high schools will be partially limited to those who have the ability and the inclination to profit by them. We think, too, that this is a consummation devoutly to be wished alike by teachers and tax-payers.

DIRECTIONS FOR PRESSING AND PACKING BOTANICAL SPECIMENS.

In order to have good herbarium specimens it is essential that care be taken in collecting. Plants should not be gathered when wet with rain or dew, or when parched by the sun. The root should be secured with the plant. Many annuals may be found in fruit and flower at the same time, but in case this cannot be done, specimens should be gathered at different times, so that both flower and fruit may be shown. Thick roots may be shown in sections, tall stems flexed and reflexed to come within the limits of the ordinary herbarium sheets, of which the standard size is eleven and one-half by sixteen and one-half inches. Wandering fruits may be secured in small envelopes suitable to fasten to the mounting paper. The aim should be to secure so perfect and characteristic specimens that it may be easy to determine the species from the dried plant.

In pressing, the plants should be laid smoothly between newspapers, with a strong board at top and bottom, and above them should be placed an evenly distributed weight of about one hundred pounds. The papers should be changed once a day, or twice at first if the pile is a large one, and the press should be kept in a warm, dry place. Succulent plants need light pressure at first, gradually increased. To prevent shrubby specimens from wrinkling their neighbors, thin boards may be inserted. It is well to place delicate plants first in tissue paper, and flowers may sometimes be better preserved by pressing separately.

A rapid way to dry sedges or grasses, is to place them between blotting paper and use a hot iron. Although this method does only for fibrous species, all plants give better results when dried as quickly as possible; warm driers, however, will blacken them.

Many prefer to newspapers the regular drying-paper sold by the dealers, or sheets of carpet paper, while felt is said to give the best colors. In the latter case, but one layer can be dried at a time, though the process is more expeditious than the ordinary way. Instead of the board, open wire presses may be preferred, and screws or straps may be used instead of weights.

Poisoning is necessary to prevent insect depredation, although when exchanging it is usually as well not to poison specimens before

sending. The ordinary preparation is five grains of arsenic to a quart of alcohol.

These suggestions refer chiefly, of course, to common Phanerogams and ferns, such plants as Cacti, Fungi, and Algae, requiring special treatment.

To send a collection of two hundred specimens or less, each plant properly labelled should be placed between sheets of thin paper, a piece of stout paste-board should be put at top and bottom, the whole should be wrapped in stout paper and sent by express. If sent long distances, packages not exceeding four pounds weight may be sent more cheaply by mail.

INTERCHANGE.

Communications upon any educational topic may be addressed to G. R. CUTTING, LAKE FOREST, ILLINOIS.

THE POSSIBILITIES IN A DECLAMATION EXERCISE.

Since the publication of the INTERCHANGE upon "Rhetorical Exercises in High Schools and Academies," some practical queries upon this subject have accumulated, which it is the purpose of this article to answer.

The incidental and extraneous benefits that come from exercises in declamation seem to be generally conceded:

"Such exercises serve to arouse an interest in the school on the part of those who otherwise could not easily be induced to visit the school-room."

"They furnish 'filling' for a programme of entertainment that, now-and-then, is deemed 'a necessary evil'—especially in village high schools."

"They constitute the main portion of closing exercises of a term, or year, hence must be tolerated."

Conceding that a hundred admirers will rush to a school to hear the pupils "speak pieces," where only one will visit the school to listen to "a class-recitation which alone fully represents the every-

day work of teacher and pupil," yet, after all, if such benefits of the declamation exercise are the main ones derived, I am convinced with some of my fellow-teachers "that the game is not worth the candle." Let us set over against these incidental advantages some of the positive benefits that must come from declamation exercises properly conducted. Previous to this summary, it will be necessary to note some errors commonly made in conducting exercises in declamation:

Error number one is made when the teacher, especially with inexperienced pupils, does not exercise supervision over the selection of the extracts to be rendered.

The *modus operandi* is commonly this. A streak of duty seems to have flashed into the teacher's mind that something must now be done in school by way of declamation. Accordingly, all the pupils from A to D are ordered to prepare declamations for delivery on a certain date. There follows a general scrambling for a "piece" and a ransacking hither and yon for,—the pupil himself knows not what. Hence it often occurs that the little fellow with a piping voice endeavors to render an extract from Webster; and the big boy with a deep basso voice recites some sing-song rhyme; while a large contingent of the other boys select a "funny" piece when, in all probability, there is not more than one boy in the whole school who has capabilities for rendering a humorous selection, if such be worthy of memorizing. A declamation, like a suit of clothes, at least, in a general way, must fit the individual. It is a waste of energy to attempt to fit the individual to some suits, or declamations.

Remedy number one: Do not give out any appointments for declamation until you have laid, through familiar talks with the pupils, the basis for the development of a correct literary taste which shall guide in all future selections. An almost indispensable requisite is to have, at the reference-table, three or four good books of selections, like the "Hamilton Speaker." When to these are subsequently added such books as "Speeches of Wendell Phillips," there will soon accumulate a rhetorical library that will be invaluable in its service in the declamation work. A scrap-book in which may be collected speeches of the day and stirring editorials upon current events is a valuable aid.

Error number two is made in allowing pupils to render too long selections.

This mistake involves a sacrifice of too much time of pupil and teacher and too much patience on the part of listeners. It is a dissi-

pation of energy. A single paragraph mastered is better than a whole speech murdered.

Remedy number two: Make a limit, either a word-limit, or a time limit, that shall be strictly adhered to.

Five minutes in time, or from three to five hundred words will embrace all of a selection that it will be profitable for an academic student to drill upon at any one time. Nearly every student will probably say that he "cannot cut his piece down;" but with a little guidance in the first effort, he will easily learn to bring any extract within the required limit. A single speech of Wendell Phillips can often be easily cut up into a dozen extracts, each of which will be sufficiently independent and complete for all purposes aimed at in a declamation exercise. It is one good element in rhetorical training and criticism, by cutting out portions, to condense a speech into a connected declamation extract of a specified limit.

Error number three: The belief that declaiming is "spouting," that elocution is "ranting."

Some ears untrained can not tell the difference between music and noise; and a good many pupils and some teachers are not, seemingly, quite clear as to the difference between real eloquence and a show. Some years ago, inter-academic contests in declamation were held year after year in the State of New York. In nearly every contest some candidates for honors appeared who betrayed the fact that their teachers' ideas of oratory were startling attitudes, facial contortions, and the like. Their "performances" resembled those of acrobats. Self-confident in their vocal gymnastics, both pupils and teachers wondered, year after year, why no prizes in declamation fell to them. Perhaps it was the mission of these contests to aid in banishing the bombastic, and to demonstrate, through a series of object-lessons, that, with a competent board of judges, only the natural, easy, forcible expression of thought was entitled to honors.

Remedy number three: Teachers should keep constantly in mind that the ground-work of a good declamation is good reading.

A pupil who can read well can usually render well a declamation. A half-hour spent by a teacher in class criticism to uproot faults in reading, just after the declamations are selected, is usually time profitably spent. It is for the reading element in declamation-drill that we would especially plead. It should be understood that a pupil should not attempt to render or even memorize an extract till

he can read it well, catching the spirit and communicating forcibly the thought of the author. In one of the leading city high schools in the State of New York all elocutionary exercises are called "Reading Drill." Is it not questionable whether a mistake has not been made in these latter days in crowding out all Reading Exercises from the high schools and academies? If they have been so crowded out, proper declamation-drill will materially aid as a substitute, in making good readers.

Error number four: Regarding declamation as though it were not regular, legitimate work in the department of English; and doing all declamation work outside of school hours. Every reputable college demands a more or less high standard in English preparatory studies. Few examiners find it. A large number of the candidates for the freshman classes can not read an extract of simple English prose in good taste, correctly, and with proper expression. The teacher that makes declamation-drill "a hobby" and "rides it to death," multiplying exhibitions, prize contests, etc., *ad nauseam*, makes one grave error; the teacher who leads pupils to associate declamation-drill only with such outside and somewhat distracting entertainments makes also an error; though, perhaps, the teacher who, through observations of the errors of others, neglects the declamation exercise altogether makes the gravest error of all. There is a course imperiled by neither Scylla nor Charybdis.

Remedy number four: Give to the declamation-drill a part of the weeks' programme, *i. e.*, in the regular school hours. Call it "Reading Drill," if Declamation with you has come to savor of "exhibition work." Systematic class instruction supplemented occasionally with individual drill or with a section of a class, all in school hours, upon a standard English selection, for at least one recitation period per week will be found to be profitable work. Properly conducted, it will relieve and stimulate all the other work of the school. To place the hours for such drill only after regular school hours, when teachers and pupils are, or ought to be, anxious to get out of doors, imperils the profitableness of the exercise, is an intolerable demand upon pupils, and rightly makes all such work unpopular with teachers.

Error number five: Expecting excellence immediately and under conditions different from those on which teachers rely in other departments of school work.

Many teachers ignore in declamation the necessary conditions of attaining excellence, viz: class drill supplemented by individual

practice. To give a good translation from a foreign language and to render well a declamation are exercises not wholly unlike in their production. Some teachers aver that they are "too crowded" to organize such work; many lack confidence in their own ability to conduct it; some seem to be too lazy to make the experiment; and a few perhaps are incompetent. It is a mistake to claim that elocution can only be successfully taught by a specialist; or by one who is himself an elocutionist. Some of the best work in this department of declamation is done in schools where they have neither elocutionist nor specialist, among their teachers. These schools have, however, live teachers who know when and how the English language is well rendered—a presupposed accomplishment of every candidate for the position of principal or teacher.

Remedy number five: Class drill supplemented by individual practice must be the conditions of excellence here, as in the Latin translation.

To give individual drill before class drill is to waste time and energy, and to prevent the development of an *esprit du corps* that always follows a spirited class recitation. A few class lessons on stage manners, etc., will save a vast amount of time that otherwise would have to be spent in correcting individual crudities in stage manners, gestures, expression, etc., though this will not always sufficiently correct personal awkwardness, wrong interpretations and the like. If the teacher is content in this exercise, as in the Latin translation, to "make haste slowly," good results will finally be assured. Teachers of declamation too often make appointments "to speak;" and then at the time of delivery merely listen to the effort; put down, perchance, the per cent of the pupil, supposing, seemingly, that to have memorized "a piece" is to realize the possibilities in a declamation exercise. A method that has worked admirably in many schools is to assign some standard extract like Phillips's "Toussaint L'Ouverture" to a class or division of a class. For the first appointment, only attempt to catch the spirit of the extract, through a short historical sketch of the subject of the address, its author, as an orator, emphasizing the time and circumstances of its delivery, and bringing all side lights to bear upon it, as in the Latin translation. Then by comparative readings, studies, criticisms, and counter-criticisms, the extract may be prepared for memorizing. The pupil who excels may then deliver the extract profitably before the school. One caution should always be kept in mind in class drill in declamation.

Do not destroy the individuality of the declaimer. The object of the exercise is to cultivate the pupil's own talents in rendering the extract. Five pupils thus thoroughly inspired with the spirit of their declamations will do more for themselves, and to arouse an interest in the school at large, in this department, than fifty declamations shabbily rendered. And when an elocutionary *esprit du corps* is established in a school, individual drilling on the part of the teacher will be reduced to the minimum; for the older boys who gain a reputation for excellence will naturally (especially under the stimulus of rivalry of literary societies) become the "drills" of the younger boys,—excellent practice, by the way, for the older ones. In one school reported, teachers are relieved from all except the general class drill. When first working up an interest in declamation (and in many schools it is kept up all the time) five or ten minutes after the morning exercises is found to be the best time for the delivery of the best declamations before the school; for "crudities" are thus better kept in the background till they are "worked out." The strain incident to drilling a lot of crude scholars for the "public exercises" of a whole afternoon is simply intolerable and suicidal.

Perhaps the possibilities in a well-conducted declamation exercise may be summarized as follows:

I. It affords an opportunity for direct drill in such elements of good reading and talking as correct pronunciation, accentuation and clear-cut enunciation of words; affording likewise an opportunity for an active warfare against indistinctness of speech, the bane of all classes in all subjects in all schools.

II. It gives an opportunity for added drill in correct breathing and voice training.

III. It is a valuable exercise in the broader field,—the language of expression.

IV. In a declamation exercise, a student often gets his first practical lesson in self-possession, equipoise in standing, self-forgetfulness (*not* self-consciousness, if properly trained), grace of movement in arms and feet; and, finally, that confidence that enables a person to speak as nature prompts.

V. The declamation exercise furnishes the teacher an opportunity to train out the artificial elements in speech, posture, manner, etc.; to kill affectation and slovenliness, and to set a correct standard in winsome manners.

VI. It affords excellent memory drill, a feature somewhat neglected in modern methods of education.

VII. The declamation may prove to the student who gets a correct conception of the orator who originally delivered the address, and of the scene where it was delivered, an excellent means for the cultivation of his imagination.

VIII. The moral power of an extract that is really worth declaiming, always must have a reflex influence on the speaker.

IX. The declamation well-rendered, like any other achievement that is the result of hard work, helps the pupil to discover himself. Many a young man has received his first impulse to go to college by success achieved in the rendering of a declamation.

BOOKS RECEIVED.

The Orbis Pictus of John Amos Comenius. Syracuse, N. Y.: C. W. Bardeen, Publisher. 1887.

In his "Essays on Educational Reformers," Mr. Quick, speaking of the "*Janua Linguarum Reserata*," says: "It would have had but a short-lived popularity with teachers, and a still shorter with learners, if Comenius had not carried out his principle of appealing to the senses, and called in the artist. The result was the "*Orbis Pictus*," a book which proved a favorite with young and old, and maintained its ground in many a school for more than a century. The "*Orbis*" was in substance the same as the "*Janua*," though abbreviated, but it had this distinctive feature, that each subject was illustrated by a small engraving, in which everything named in the letter press below was marked with a number, and its name was found connected with the same number in the text. * * * The artist, of course, was wanting in the technical skill which is now commonly displayed, even in very cheap publications, but this renders his delineations none the less entertaining. As a picture of the life and manners of the seventeenth century the work has great historical interest, which will, I hope, secure for it another English edition; especially as the last (that of 1777, reprinted in America in 1812), which is now occasionally to be met with, is far inferior to those of an early date."

Students of the history of education are under a real obligation to Mr. Bardeen for his enterprise in re-issuing this work. That a book which for more than a century was used by thousands of children all over Europe has become as unfamiliar to teachers as the lost books

of Livy seems at first sight strange. To obtain an early edition of the work has long been impossible, and even the later and imperfect editions are by no means common. The cuts in the present edition are copper-plates of that of 1658, from which also the editor has taken the Latin text. The text for the English translation is taken from the edition of 1727, in which for the first time the English words were so arranged as to stand opposite their Latin equivalents.

The work as a whole is much superior to anything that has thus far issued from Mr. Bardeen's press. The cuts were reproduced by the photographic process, the publisher showing excellent judgment in refusing to have them retouched. Occasional indistinctness simply increases their resemblance to the original. The type is quaint and pleasing, the margins wide, the paper thick and firm. The whole appearance of the book commends it. It may be that we labor under a slight prejudice from a knowledge of the fact that the mechanical execution of the book is almost entirely the handiwork of an old pupil of ours. Still we are not inclined to admit that there need be much abatement from our favorable judgment. It is impossible that the limited edition that has been issued will supply the demand for a work at once so rare and so important.

Catalogue of the Pedagogical Library and the Books of Reference in the Office of the Superintendent of Public Schools, Board of Public Education, Philadelphia, with Bibliographical Notes and References. By James MacAlister, Superintendent of Public Schools, Philadelphia. Printed by order of the Board. Philadelphia: Burk & McFetridge, Printers, 306 and 308 Chestnut Street. 1887.

That there has been collected in the office of the Philadelphia Superintendent of Public Schools a pedagogical library of considerable size is a fact which speaks well both for the superintendent and the authorities who employ him. True no city superintendent's office should be without a similar equipment, but unfortunately things are not always, or even often, as they should be. That it is a matter of recent date even in Philadelphia is shown by the fact that the books of this library have been got together during the past four years.

The catalogue which Mr. MacAlister has prepared presents several very desirable features. It is not as large or as full as Hall and Mansfield's *Hints Toward a Select and Descriptive Bibliography of Education*, published in Boston not long since, but on the other hand it lacks the innumerable blunders which characterized every page of that work. It seems to be weakest in Italian educational literature.

German pedagogical literature is poorly represented, and this deficiency is noted and explained partially by Mr. MacAlister in his preface. French is well represented, even beyond its intrinsic worth, we think, though that can easily be a matter of opinion.

A specially valuable feature is the indicating of the contents of the various chapters of the books deemed by the editor most important. We notice among such books the works of Henry Barnard, R. H. Quick, Michel Breal, Alexander Bain, William H. Payne, Henry Latham, S. S. Laurie and others.

The mass of pedagogic literature is at present increasing with such tremendous rapidity that no teacher can hope even to glance through it all. The best we can do is to rely on the judgment of others and read that which is recommended as best worth reading. For this reason we welcome as specially hopeful every attempt at discriminating bibliography in the educational field.

Tales of Chivalry and the Olden Time. Selected from the Works of Sir Walter Scott. Edited with Notes by William J. Rolfe, A. M., Litt. D. Illustrated. New York: Harper & Brothers, Franklin Square. 1887.

This book is the first of a series the object of which is to furnish selections from standard prose and poetry suited either for supplementary reading or for elementary study in English Literature. Occasional notes are found at the foot of the page, which are intended to elucidate the text as much as may be needed for the first of these objects; longer and fuller notes at the end of the book are designed more particularly when the book is used for the purpose of studying English Literature.

The selections in this volume are taken from the novels of Scott, which deal with the time of the crusades. They are full of interest and well annotated. The only criticism that can be made is that it is probably better on the whole that students should become acquainted with Scott by reading some of his works entire rather than by taking up detached passages.

International Education Series. *The Education of Man.* By Friedrich Froebel. Translated from the German and Annotated by W. H. Hailmann, A. M., Superintendent of Public Schools at La Porte, Indiana. New York: D. Appleton and Company. 1887.

It is not a difficult thing in these days to get very weary of Froebel. Established by its founder to fill a lack which was very clear, the Kindergarten has been adopted extensively by those who never understood his spirit or philosophy, and introduced under con-

ditions where it was useless and unnecessary. Still, despite the abuse of Kindergarten, Friedrich Froebel is an important name in the history of education, and no teacher who cares to understand the history and growth of teaching should remain ignorant of the Education of Man. For the rest, Superintendent Hailmann is perhaps the best exponent in this country of the system of Froebel. An edition of "The Education of Man" translated and annotated by him has the highest claim to appreciation from those who wish to become familiar with the author.

English Reprints. Roger Ascham. *The Scholemaster*. Written between 1563-8. Posthumously published. First Edition, 1570; Collated with the Second Edition, 1572. Edited by Edward Arber, F. S. A., etc., Fellow of King's College, London; Hon. Mem. of the Virginia Historical Society; Professor of English Language and Literature, Sir Josiah Mason's College, Birmingham. Boston: Willard Small. 1888.

It has long been impossible to obtain at a moderate price a well-printed copy of this famous book. The present edition exactly meets the want. Like all Mr. Small's books, it is well-printed on excellent paper, and the proof reading, in this case an appalling labor, is carefully done. The volume contains an introduction, a bibliography and an exact reproduction of the original first edition published in 1870. Mr. Small has placed all teachers under a real obligation by publishing this book in a form to please the eye, and at a price within the reach of all.

Washington and His Country. Being Irving's Life of Washington. Abridged for the use of schools. With Introduction and continuation, giving a brief outline of United States History from the Discovery of America to the end of the Civil War. By John Fiske. Boston: Published by Ginn and Company. 1887.

That all American children should become acquainted as far as possible with the life of Washington goes without saying. The present work is clear, accurate, unpretentious and inexpensive. It is not too bulky to be used and is complete enough to answer all the purposes of the school room, and even at a pinch to serve as a book of reference.

Outlines of Natural Philosophy. For Schools and General Readers. By J. D. Everett, D. C. L., F. R. S., Professor of Natural Philosophy in the Queen's College, Belfast; Editor of "Deschanel's Natural Philosophy;" Author of "Elementary Text-Book of Physics." Illustrated by 216 engravings on wood. New York: D. Appleton & Company. 1887.

How to Secure and Retain Attention. By James L. Hughes, Inspector of Schools, Toronto, Canada; Author of *Mistakes in Teaching*. A Revised Edition with much new material. New York and Chicago: E. L. Kellogg & Co. 1887.

Parallel Grammar Series. *A German Grammar for Schools.* Based on the principles and requirements of the Grammatical Society. By Kuno Meyer, Ph. D., Lecturer in German in University College, Liverpool. London: Swan Sonnenschein, Lowrey & Co., Paternoster Square. 1888.

Industrial Instruction A Pedagogic and Social Necessity. Together with a Critique upon Objections Advanced. By Robert Seidel, Mollis, Switzerland. Translated by Margaret K. Smith, State Normal School, Oswego, N. Y. Boston: Published by D. C. Heath & Co. 1887.

A Latin Grammar for Schools. Based on the Principles and Requirements of the Grammatical Society. By E. A. Sonnenschein, M. A., Professor of Classics in the Mason College, Birmingham. Part I.—Accidence. London: Swan Sonnenschein, Lowrey & Co. Paternoster Square. 1888.

The Manual Training School. Comprising a full statement of its aims, methods and results. With figured drawings of Shop Exercises in Woods and Metals. By C. M. Woodward, A. B. (Harvard), Ph. D. (W. U.) Boston: D. C. Heath & Co., Publishers. 1887.

What Words Say. A Practical Analysis of Words. For use in Elementary Schools. By John Kennedy, Conductor of Teachers' Institutes; Author of "The School and the Family." New York: Kennedy & Co., Publishers, 38 Park Row. 1888.

Lectures on the Science and Art of Education, with other lectures. By Joseph Payne, The First Professor of the Science and Art of Education in the College of Preceptors, London. New Edition. New York: E. L. Kellogg & Co.

The Gettysburg Speech and Other Papers by Abraham Lincoln, and An Essay on Lincoln by James Russell Lowell. With Introduction and Notes. Houghton, Mifflin and Company. The Riverside Press, Cambridge. 1888.

The School Album. A Collection of New and Beautiful Songs for Day Schools. By H. W. Fairbank, Author of "School Songs," etc. Words by Miss Minnie B. Lowry. Primary. Chicago: S. R. Winchell & Co. 1888.

First Steps in Electricity. Designed for the Entertainment and Instruction of Young People at Home and in School. By Charles Barnard. New York: Charles E. Merrill & Co. 1888.

Monographs on Education. *English in the Preparatory Schools.* By Ernest W. Huffcut, Instructor in English in Cornell University. Boston: Published by D. C. Heath & Co. 1887.

Mistakes in Teaching. By James L. Hughes, Inspector of Schools, Toronto, Canada. Revised Edition. New York and Chicago: E. L. Kellogg & Co. 1887.

English in the Schools. By F. C. Woodward, A. M., Professor of English, Wofford College, S. C. Boston: D. C. Heath & Co., Publishers. 1887.

Portraits and Biographical Sketches of Twenty American Authors. Houghton, Mifflin and Company. The Riverside Press, Cambridge. 1887.

Utilitarianism. By John Stuart Mill. New Edition. Boston: Willard Small. 1887.

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*PRIZE ESSAY.**

SCIENCE IN SECONDARY SCHOOLS.

BY CHARLES R. DRYER, M. D., FORT WAYNE, INDIANA.

The majority of pupils enter the secondary schools with three dominant ideas in regard to school work:—

1. Facts and principles are to be learned from books.
2. They are to be learned by a process of memorizing.
3. The immediate object of such memorizing is to enable the pupil to satisfy the teacher in recitation, and thus to obtain good marks or credits upon the record.

That there are individuals, schools, possibly whole towns, wherein these ideas are not dominant, does not impair the general accuracy of the statement. These ideas have been acquired by six or eight years of systematic training, at an age when the mind is "wax to receive, marble to retain." The special function of the science teacher in the secondary schools is to eradicate their ideas so far as they are false, to correct them where they are half true, to change these organic habits of mind, to teach the pupils to observe facts,

* This paper received the prize of fifty dollars recently offered by THE ACADEMY for the best practical essay on Science Teaching in Secondary Schools.

to think about them, to arrive at principles by a process of reasoning, and to record observations and conclusions in clear and precise language. He is to begin a new education, to compel the pupil to abandon the literary method, and to adopt the scientific method. The magnitude of such an undertaking can be appreciated only by those who have tried it.

The pupil has learned to read, to listen, to commit to memory, to recite; he must now be taught to observe with all his senses, to work with his hands, to reason, to originate. Through which of many doors may he be introduced most easily to the new realm of science and made to feel at home there? It is worth while to avoid a too sudden change of mental atmosphere; and there is no escape from the limitation that the new education must be based upon the old, however slender a foundation that may furnish, and that progress must be from the known to the unknown. Hence, it is best to begin with some general subject which will find the largest number of points of contact with previous experience, and will tend to revive those interests and habits which are characteristic of childhood, but largely discouraged and abandoned in the primary school. In accordance with this idea the best subject for the first year is physical geography. That, as a science, it has not the unity and individuality of physics or botany, and that the beginner cannot understand all that might be taught under the name, are statements of obvious truth. But there are within its limits subjects enough which can be understood, and can be made interesting; and this is the main consideration. If the materials composing the solid crust of the earth be taken as an introduction, and no lesson be assigned from the book for two weeks; if the time be taken up in learning from specimens in hand the physical characters of the common minerals and rocks of the locality, and in visits to gravel pits, stone piles, quarries and excavations, the first look of amused surprise upon the faces of the class, and the final manifestations of growing interest, will testify that the mental shock has not been too great, and that the threshold has been successfully crossed. The general principles of dynamical geology can then be taught; the phenomena of erosion, transportation, and deposition may be studied at any brookside; maps, sections, photographs, and models, illustrating all the great natural features of the globe, can now be obtained at moderate cost. When the facts are clearly apprehended the pupil should be led to form his own theories and conclusions. Nothing should be taught dogmatically,

and freedom of opinion should be encouraged. Discussions will arise upon such subjects as the formation of deltas, the improvement of the Mississippi river, the origin of the drift, the theory of coral islands, the condition of the interior of the earth, and the cause of volcanoes. By this method I have repeatedly seen reasonable solutions of some of the most important problems in terrestrial physics offered by boys and girls of fifteen. In more than one instance the solution has been new and valuable. At such times they cease to be pupils, that is *puppets*, and become students, that is, *zealots*. In the strictly geographical portion of the study special attention ought to be given to home geography. Our own country furnishes the best possible examples of the great physical features of the globe. The Father of Waters is a type of all great rivers, the Rockies of all great mountain chains. What country can match the Colorado cañon, Niagara Falls, or the variety and profusion of lakes which pepper the surface of our northern States?

Meteorology offers a peculiarly favorable field for personal observation and experiment. The barometer, thermometer, and hygrometer are made familiar by daily use, the laws of aerial circulation are discoverable in any room warmed by a stove, and the weather we have always with us. Pupils may be required to make daily records of temperature, direction of the wind, and aspect of the sky, and to observe the barometer, anemometer, and rain gauge. These instruments are simple and inexpensive, and the field of their usefulness is unbounded. There is nothing better *for getting young people's eyes open*, for forming habits of daily observation, and for awakening an interest in natural phenomena. There is no net which will land a larger haul of scientific converts.

Physical Geography furnishes the best opportunities for destroying that reliance upon authoritative teaching and faith in the infallibility of text books, which are characteristic of primary pupils. They soon learn that all knowledge is not contained in any one book, or in all books. While their minds are broadened by the consideration of great problems, they gain courage from the consciousness that they are able to entertain, and in some measure to comprehend the nature of such problems. They see dimly on every hand more beyond them, perhaps beyond human knowledge; and if no attempt be made to suppress intelligent scepticism, they are content to leave some questions unsettled.

With the best teachers and the best conditions success will not be complete. Perhaps ten per cent of the class will display a lively and abiding interest in science. Another ten per cent will remain stolid and unimpressed. The remaining eighty per cent will make up the great average, neither especially encouraging nor beyond hope. Among them will be a large proportion who are faithful and intelligent, perhaps unusually bright in other studies ; but they fail to become interested in stones or streams, in winds or clouds. A scientific interest in nature is a thing peculiar to modern civilization. To create it, not only the effects of previous training must be overcome but heredity itself. Not only a new individual taste has to be developed but a new race characteristic ; and the child of ten generations of literary culture may prove a more difficult subject than one who springs from a more primitive and virgin soil.

Prof. Shaler recommends physiology as an introductory study on account of *the human interest* which attaches to it. This is a great advantage, and together with the practical and personal importance of hygiene, constitutes a strong claim for that study. Geography, however, touches upon many points of human interest ; and if the school library is adequate, something may be found to engage both the dull pupil and the literary bigot. They may be induced to read good books of travel, and to enjoy the picturesque beauty of the Rhine, the sublimity of the Andes, the mysteries of Central Africa, and the romance of arctic exploration.

The makers of geographical (and other) text books would do well to bear in mind the dictum of Professor Tait that "true science is in itself simple and should be explained in simple and definite language." In using any book the teacher should choose his own subjects and the order in which they shall be presented. Let him skip without compunction and without fail those chapters which condense into a few pages the whole of botany, zoology or geology.

After six or eight months of introductory study, it is time to drop the semi-literary method and to proceed along the more rigorous lines of experimental research. The question at once arises, what portion of experimental science is best to begin with ? Which ought to come first, physics or chemistry ? This question may be answered by asking another: why not begin with both ? Chemistry is a branch of physics; it is not necessary to emphasize the distinction between them. Why not study together those portions of both sciences which are most suitable ? Instead of dividing physical

science into one portion which treats of the molecule (physics), and another portion which treats of the atom (chemistry), the division may as logically, and more conveniently, be made between a portion in which attention is chiefly directed to the structure and properties of matter (structural physics), and a portion in which attention is chiefly directed to the forms of energy and the laws of motion (dynamics and kinetics). The distinction is analogous to that between anatomy and physiology, and of course anatomy comes first. The subjects first taken up, then, should be those whose general *facies* is chemical. Some reasons for this arrangement are:

1. The experimental work is less difficult.
2. The apparatus required is more simple and inexpensive.
3. Experimental errors are not ruinous and the student is not discouraged by failure at the outset.
4. A series of concrete problems may be arranged, which the student can comprehend and work out to a successful solution by the use of the simplest mathematics.
5. The work can be made a continual search, in which the student is led on by the charm of discovery to ponder, to reason, and to form scientific induction.

The scheme will be something like this:

1. Weights and Measures.
2. Gravitation, Weight and Density.
3. The Molecular Structure of Matter.
4. The Physical States of Matter.
5. Cohesion and Crystallization.
6. Adhesion and Capillarity.
7. Solution, Diffusion and Osmose.
8. Heat and its Effects.
9. Melting and Boiling.
10. Distillation and Sublimation.
11. The Behavior of Gases.
12. Chemical Change.

At this point the student is fairly launched upon the sea of chemistry; he cannot explore the whole of it, and the course which will prove most profitable varies with laboratory facilities, time, special qualifications of the teacher, and the tastes and prospects of the student. Under such varied conditions only a few general rules can be formulated for guidance.

1. Work in chemistry should be experimental and inductive to an extent which enables the student to obtain a basis of knowledge directly from nature, and to hold it by right of discovery.

2. Original work should be accompanied and supplemented by reading.

3. The original work and the reading should be so correlated as to make the student understand from personal experience the processes by which truth is discovered. The work and the reading should illuminate each other, that from both the student may obtain a clear and vivid perception of great principles.

To embody the whole in one statement: the student should learn from experience and reading the methods and principles of chemistry.

The success of this or any other plan will depend upon the care and skill with which it is carried out. Success can be attained only by attention to a vast number of minute details which cannot be noticed here. There must be a laboratory; but in regard to its character and cost very exaggerated notions have prevailed. The school houses in which a room cannot be found which *will answer* for a laboratory must be few indeed. Many a respectable chemist has begun upon the kitchen table, and when he came to an experiment unsuitable for that place, has gone out of doors. Let the best room available be furnished at least with plain pine tables, high enough to work at standing, and wide enough for a set of shelves through the middle, with room for work on each side. Drawers under the table, cupboards for stock, a fume closet communicating with a stove pipe, and stoneware crocks for waste, constitute an outfit by no means inadequate for good work. Lists of chemicals and apparatus needed may be found in most school text-books; but one who has never tried it has no idea how much can be done with bottles, plates, pans, and other home-found or home-made material. A cheap cook-stove is very convenient in a laboratory; and if gas is wanting, efficient gasoline lamps can now be obtained. If necessary two or more students may work together without serious difficulty or detriment. The book used in the laboratory should be merely an exercise book and should not contain a single page of descriptive chemistry. Let the directions for work be as full and explicit as you please, but let the student discover the results for himself. The rule that the student should be told nothing which he can find out for himself, errs but little upon the side of restriction.

The sins of the ordinary text book on this score are boundless and unpardonable. Usually the student is not permitted to discover the most obvious phenomena, or given an opportunity to form the simplest induction. Each student should make a careful and systematic record of his work, which should be read before the class by way of recitation, criticised, and rigidly cross-examined. The teacher will have to perform in the presence of the class, and with the assistance of some members, (1) experiments which are important but too difficult for the inexperienced; (2) experiments which are too costly in material or time; (3) experiments which the students may perform after being shown how.

The old-fashioned plan, still pursued in many schools, is lectures and recitations in general chemistry, and laboratory work in qualitative analysis. The scientific training to be obtained from analytical work is of great value, *and should not be neglected*; but in secondary schools the object is not to make practical chemists, but to teach chemistry as a part of general education. When laboratory work is chiefly analytical it is divorced, in the student's mind at least, from his class-room work, and fails to throw that light upon principles which is so much needed.

Many questions will arise like these: Ought study to proceed from compounds to elements or from elements to compounds? Should salts be grouped for study according to their basic or their acid radicles? Should metals be studied first, or non-metals? Should elements be studied singly and then in groups, or *vice versa*? Should the work be qualitative or quantitative? To all such questions the most rational answer is *both*. Let broad catholicity and judicious eclecticism prevail, with but one inflexible rule: proceed from the known to the unknown, from experiment and observation to conclusions and principles, from facts to theories and laws.

When the allotted course in chemistry has been completed, the student should proceed to the study of energy as such, dynamics, electricity, acoustics and optics. The general method is the same as in chemistry; but the work becomes more largely quantitative and the demonstrations more rigidly mathematical. The present imposing structure of physical science has been built up by means of accurate measurements, but it rests upon a foundation of qualitative discovery. For the beginner quantitative experiments are not only good but necessary, and they cannot be ignored. Let the work, then, be qualita-

tive as it must and quantitative as it can. In secondary schools, at present, physical measurement is much restricted by the costliness of good instruments, the scarcity of good books and good teachers, and the generally undeveloped state of that branch of pedagogy. For these reasons it is better to devote two-thirds of the time spent in physical science to the structural portion of it.

What ought the pupil to gain from such a course of study?

1. *Manual training.* The handling of corrosive chemicals and fragile dishes, the manipulation of glass and other materials in the fitting up and use of apparatus, and the care and deftness required for successful work, compel a manual training of no mean order.

2. *Scientific training;* which consists in the constant exercise of observation, ingenuity, judgment, and the highest reasoning powers.

3. *Scientific and practical knowledge,* including the great principles of physical science and their application to the arts. "Nature", says Emerson, "is a discipline of the understanding. Every property of matter is a school for the understanding, its solidity or resistance, its inertia, its extension, its figure, its divisibility. Our dealing with sensible objects is a constant exercise in the necessary lessons of difference, of likeness, of order, of being and seeming, of progressive arrangement; of ascent from particular to general; of combination to one end of manifold forces. The understanding adds, divides, combines, measures, and finds nutriment and room for its activity in this worthy scene."

The place of the biological sciences in secondary schools remains to be considered. There is at present a tendency to make division lines less prominent, to teach not physics and chemistry, but physical science; not botany and zoology, but biology; not the sciences, but science as one organic body of truth. The progress of science makes this daily more possible and necessary. As myriads of facts are swallowed up in one generalization, as phenomena apparently remote are found to be but varying aspects of one process; the sharp dividing lines which existed only in our ignorance fade away, physics merges into chemistry, and both through mineral physiology into the science of life, and we see the dawning possibility of that perception of the unity of nature which is at once science, philosophy and religion.

Morphological and systematic botany offers so many advantages and attractions that it has long held the first place among biological studies. Botanizing is so attractive, the love of flowers being an

almost universal sentiment; the material is so abundant, accessible and free from repugnant features; the processes of analysis and classification call into play so fully the faculties of close observation, comparison, and perception of likeness and difference, powers which lie at the foundation of scientific research; the training afforded by the use of a highly elaborated technical language is at once so simple and so severe; that this field is, and must ever remain, one of the most available for bringing young pupils into scientific contact with nature. But these very characteristics determine its proper place to be near the foundation of scientific education and not near the top. Morphology and species hunting may be unprofitable for the third year, but histology is certainly impracticable for the first year. In the average pupil there is no faculty more weak than constructive imagination; inability to form definite conceptions of tissue and structure from microscopic sections is nearly total; and to begin with yeast, protococcus and the compound microscope, would be worse than useless. Notwithstanding all that has been said and may justly be said concerning "the new botany", whenever fields and woods are near, the old botany still has strong claims to a place among the introductory studies, perhaps most appropriate for grammar grades, but not to be ruled out from the first year in the secondary school. In that place it furnishes a fair chance at natural history to a large class of pupils who never reach the third year studies at all.

Whenever and wherever the biological method, as distinguished from the natural history method, is suitable and practicable, let it be used, with judgment and caution. The most eminent teachers of that method now recognize the error of beginning with forms structurally most simple but practically most difficult. In the preface to the last edition of Huxley and Martin's *Biology*, Prof. Huxley says: "After two or three years trial of the road from the simple to the complex, I became so thoroughly convinced that the way from the known to the unknown was easier for students, that I reversed my course and began with such animals as a rabbit or a frog, about which everybody knows something." Logical order in teaching science has been the subject of much controversy. To quote Prof. Huxley again, with a slight modification: "Logical order is the scarecrow of fools and the beacon of wise men." A good and easy rule in natural history is, *study that which is nearest you*. This idea has never been better expressed than by Prof. Jenkins of

DePauw University, when he said. "If you live in a blue jay country, and it is blue jay season, and there are plenty of blue jays, and you can get your hand on a blue jay, that is the logical order in which to study a blue jay." The cat and the fowl we have always with us; the frog and the fish are to be had in their season; and a great many lines of creation run through each of them. A text book which can be used without actual examination of specimens should, at this stage, be summarily evicted from the school room.

A half year's work is generally sufficient for the student to acquaint himself with a few great types of animal and plant forms, and to become passably familiar with the use of scalpel, forceps, section cutter and microscope. He can then determine what branch of biological study he wishes to pursue, and turn thenceforth his attention chiefly to botany, entomology, ornithology or other specialty. Such study like every other scientific pursuit requires time, room, instruments, material. The same remarks apply here as were made concerning a chemical laboratory: convenience is cheap, elegance is unnecessary and out of place. If a dozen microscopes cannot be had, a great deal can be done with one by keeping it in constant use. A word for the teacher must not be forgotten. In literary studies the teacher needs only a desk, a chair, a book and his brains: all of these may be dispensed with except the last. But the teacher of science has a large mass of material, animate and inanimate, to prepare, to keep in order, to use, to put away. He should be relieved from the cares of discipline except the order of his own classes, and should not be expected to hear more than three or four recitations a day. If there be three recitation periods in each half day, let the middle one be given him to clear away and make ready for the next; even on that plan he will probably spend more time in school work than any other teacher in the building. Classes must not be large. It is beyond the ability of any man to teach chemistry or biology well to a class of fifty secondary school pupils. In such a case learning is largely a matter of chance; a few who are especially interested make fair progress; the majority get only a slight smattering. One who undertakes to teach a single scientific subject as well as it can be taught will find no time for idleness.

In a course of scientific study room should be left, if possible, for geology at the top. That is the science which converges the light of physics, chemistry and biology upon the greatest problems. While it is compounded of all sciences, it holds them all in a solution so

limpid that a child may see into it. In this, more than in any other science, the laboratory must be out of doors, and limited only by time and means of transportation. *Study first what is nearest.* The great North American ice sheet has brought to the doors of millions an assortment of minerals which would require many months and dollars to collect from their original localities. Do not wait to buy a collection or a cabinet, but proceed at once to make both. Exhaust the home field and then obtain what you lack by exchange or purchase. To geology especially, but in a scarcely less degree to all science, the following aphorisms apply: I do not know their origin, but they seem to have crystallized out of the general atmosphere of good teaching.

"Never teach indoors what can be learned out of doors.

"Never explain in the abstract what can be demonstrated in the concrete.

"Never teach with books what can be perceived in objects.

"Never teach by images when nature herself is at hand.

"Never show dead nature when living nature is attainable.

"Never require belief where seeing and understanding are possible."

The course of study thus hastily reviewed is believed to be that which will bring the greatest good to the greatest number. It may be adapted to two, three or four years of school work according to the following table.

	1	2	3	4
Two years' course.	Geography 20 weeks. Physiology or Botany 20 weeks	Physical Science 40 weeks.		
Three years' course.	Geography 30 weeks. Physical Science 10 weeks.	Physical Science 40 weeks.	Biology 40 weeks.	
Four years' course.	Geography 20 weeks. Physiology or Botany 20 weeks.	Physical Science 40 weeks.	Physical Science 20 weeks. Biology 20 weeks.	Biology 20 weeks. Geology 20 weeks.

But suppose the school has not reached the point where a course of scientific study, with all the attendant expense for material and

tuition, is possible; that is no reason why science should not be taught. Let some teacher who has a taste for physical experiment, or botany, or bugs, or birds, or any other class of natural objects, undertake to give the whole school a weekly science lesson. Let the aim be not to impart information, but to show pupils and parents that science is only exalted common sense, and deals with common things; and to lift a little the veil which enshrouds the most familiar phenomena. One year of such simple work will show both teacher and pupil what can be done in this direction. Many will be interested and will co-operate heartily in an effort to enlarge the scope of scientific study. From such feeble beginnings a whole community may be educated to an appreciation of the value of science in the schools.

The chief end of scientific training is to give the student the power to enlarge his horizon, to see farther and more clearly into all sorts of things, to develop new faculties in the individual for his own advantage and the betterment of humanity, to make his own and all lives better worth living. Success in such an undertaking demands in the teacher more than the usual amount of labor, skill, patience and courage. The results are not all immediately evident. They cannot be fully estimated by credits upon the teacher's record. Scientific studies are but imperfectly adapted to the prevalent marking system; so much the more for the system. Growing powers of insight, constructive imagination, induction, generalization, are not easily estimated in percentage. Examinations are useful in many ways, both to student and teacher; but they should consist of practical problems adapted to test the ability of the student in original research. He may not be expected to work them out at a single session, and should be granted the widest liberty compatible with honest work. When all that is done, there will be a considerable residue of genuine development, perhaps the better part of his education, which cannot be measured by the meter-rod of a school examination.

Scientific education is successful just so far as it creates in the mind the scientific spirit and the scientific habit. To get the pupil's eyes open is the first thing; but merely to see a thing is not to know it; its meaning must be interpreted; it must be put into relation with other knowledge; from what is seen must be constructed some portion of the unseen. The best fruit of the scientific spirit is the conviction that "nature is the expression of a definite order with which

nothing interferes," because the determiner of that order cannot be interfered with. Scientific culture includes a knowledge of that order as minute and extensive as can be obtained; and produces a habit of mind which seeks for the cause of every consequence, refers all special phenomena to some general law, and from every set of conditions strives to calculate the inevitable result.

*SCIENCE IN SECONDARY SCHOOLS.**

BY HARLAN H. BALLARD, PITTSFIELD, MASS.

AMONG the motives cited for the offer in response to which this essay is written is "the prominence which physics and chemistry have attained in Secondary Schools." This would at first thought, seem to exclude from our discussion botany, biology, mineralogy, and the like. As many of these, however, are included in "the requirements of the colleges", and as all in turn have doubtless evoked "earnest appeals of the teachers", they must, on second thought, be included in the meaning of our topic. That this decision is right is further shown from the fact that essentially the same methods of teaching and study are applicable to them all, and that their admission into the curriculum is based on practically similar reasons.

Having now defined the field of discussion, we find our progress further aided by the editors of the *Academy*, who have subdivided our theme for us as follows:—

1. *A practical exposition of results sought.*

2. *The means of attaining those results in the school-room.*

We accept this division as logical, simple and therefore, good. What, then, are the results sought from a study of science? And first, what is a science? This was invariably the first question propounded in sharp, staccato tones by one of the professors, (and one of the best ones, too,) who used to train our coltish minds to draw in harness. This question always floored the unexpectant sopho-

* This paper received first honorable mention from the judges appointed to award the fifty dollar prize recently offered by THE ACADEMY for the best practical essay on Science Teaching in Secondary Schools.

more, and so stern was the official mask over the genial soul of our good professor, that the tradition in college was, that on these occasions, no matter what answer the luckless student might stammer forth, his teacher plumped him down into his seat in dire confusion by thundering out—"You lie!—Next?" But this was a libel. As nearly as I can recollect, after the lapse of many busy years, the gist of the definition our honored instructor 'was after', was this: "A science is any department of knowledge understood in its facts and laws". If I were to recite it so to him, I dare say I should not be marked higher than seven on a scale of ten; but, at any rate, the definition which an older teacher used to give has staid by me in its integrity,—but this was for 'science,' not 'a science.' "Science," said he, "is knowledge in order;—classified knowledge;" and as the dictionaries agree with him pretty well, I presume he was right. Karlake (and I know no more of him than this;) says "in science, *scimus ut sciamus*; in art *scimus ut producamus*. And therefore science and art may be said to be investigations of truth, but science inquires for the sake of knowledge, art for the sake of production, and hence science is more concerned with the higher truths, art with the lower, and science never is engaged, like art, in productive application. And the most perfect state of science, therefore, will be the most high and accurate inquiry; the perfection of art will be the most apt and efficient system of rules, art always throwing itself into the form of rules." To this it may be added that the attainment of science brings knowledge, the attainment of art, skill.

We may now venture to propose, as the first result to be hoped from science-teaching, the development in the pupil of a *cupidity for truth*; a love of study; a desire for knowledge; a passion for research; a fondness for investigation; delight in mental activity. I am tautological on purpose. Call it what you will, this desire is a good thing, and proper teaching should inspire it in minds capable of it.

The second result of scientific teaching should be the development in the pupil of the power of satisfying this awakened craving. Imbued with a true scientific spirit, he must be trained to the intelligent and patient use of his faculties, especially those known as 'observation,' and 'reasoning.' He must learn to see what is, so that he will not, like Caesar's lieutenant, inconsiderate Considius, come galloping back from his tours of investigation to report "*quod non vidisset pro viso*." He must also learn the harder lesson of tak-

ing heed to his inferencs. How often error gets its camel's nose in at the crevice between observation and induction! Trained observation and disciplined reason, besides the positive good they give their fortunate possessor, are almost equally valuable by virtue of what they destroy;—to wit, carelessness, falsehood, credulity, superstition.

If we add, finally, the nice training of hand and eye necessitated in most scientific manipulation, whether it be the exact line drawing of geometry, the delicate weighing and measuring of chemistry, or the fine adjustment of laws and microtome in biology, we shall have set before our minds objects of pursuit worthy of our best endeavor.

Doubtless, my readers have thus far found themselves in substantial agreement with the writer. "I tell you that which you yourselves do know." I trust this concord may not be broken as we come now to speak briefly of the methods we have, in practice, found best adapted to secure these results. Let us descend to particulars.

Botany. This class must have the first hour of each morning during the spring, and, if possible, the fall term. I say the first hour, because it is important to have our specimens as fresh as possible when we go to work upon them, and it is also important to get them out of our way and the desks cleared for the later book-work of the day. Every pupil should bring fresh specimens every morning. These should be collected, not by hastily snatching a few chance blossoms by the way, but in accordance with previous instruction. Each pupil should bring only one or two species at a time, but may take enough specimens of each to supply the class. The specimens should be secured entire. We must "hold you here, root and all, little flower." Moreover the plants must not be rudely torn up from the earth, as if one were weeding a garden, but should be deftly removed, tenderly, if you please, and brought to school, not in wilted bunches choked by careless hands, but laid properly in botanical boxes, one of which each pupil should own. The pupils must have each his own dissecting microscope, (and let it be a good one, not a twenty-five-cent affair), and a pair of dissecting needles. I do not approve of a preliminary course of definition-cramming. Plants in hand for the first lesson. As for the method of teaching? Every good teacher has a good method, and no poor teacher can invest in ready-made methods to advantage. There is the same danger that attends the purchase of ready-made clothing—a *misfit*. Sooner or later, by whatever method, the names and functions of the different parts of

the plant must be learned, sooner or later classification must be considered; at some time or other habits of growth must be observed; and there is a time when histology should be studied. Different teachers approach these topics in different orders. The following is not a bad way. First, let each pupil plant some seeds, corn, squash, acorn, or any others, in properly prepared soil—or suspend them over water in bottles, or lay them on moist cotton in shallow pans. Let these seeds be developing during the days in which the class is learning simple nomenclature and analysis.

To begin teaching analysis, my way was to have the pupils open their books at the analytical key. In Gray, for example, we find, "Series I. PHÆNOGAMOUS or FLOWERING PLANTS, those producing real flowers and seeds."

After explaining the pronunciation and meaning of 'phænogamous,' I ask the class to find in the book 'Series II. This, which is twelve pages on, is soon discovered, and the one who finds it reads, "Series II. CRYPTOGAMOUS, or FLOWERLESS PLANTS; those destitute of stamens and pistils, in fructification producing *spores* instead of seeds."

Without further instruction, unless I am asked to explain "cryptogamous," I require each pupil to decide regarding each specimen before him, whether it belongs to Series I., or II. During the necessary examination we learn to know at sight stamens, pistils, spores, and seeds. Lest spores should be wanting, I have taken the precaution to have a supply on hand. If time remains, we treat in the same way the two classes of flowering plants, dicotyledonous or exogenous, and monocotyledonous or endogenous, classifying again, to this extent, all the specimens we have. This leads us to an examination, under the lens, of cross-sections of stems, which I have each member of the class, if circumstances will permit, learn to cut, stain, and mount, for himself. It also introduces an examination of leaf-venation, and a question regarding cotyledons, which I may postpone until our seeds shall germinate, or illustrate by specimens provided for the purpose. I need not carry you further into details. By this method we constantly progress from the known to the unknown, keeping our rear free from those half-understood definitions and doubtful interpretations which so often harass the march of an advancing class. In connection with the class-work, each pupil is encouraged to make collection for himself, and a portion of the time in school is devoted to practical instruction in pressing, poisoning,

mounting and labeling specimens. Frequent excursions are made with the class, for which they are, if possible, excused during school hours. During the same time they are caused to read the lives of a few distinguished scientists, Linnæus, and Cuvier, and Pliny, and Agassiz, it may be, for the sake of inspiring them in a degree with the enthusiasm of noble souls. Much variety can be introduced into the study later by devoting special hours to the consideration of special topics, such as cross-fertilization, insect-fertilization, devices for seed-sowing, phyllotaxy, berries, fruit-cases, the plants of one acre, forest trees, buds, etc., etc.; but I must hasten on to speak of another topic, only lingering to remark that both for boys and girls botany is one of the best possible sciences to pursue. It is free from the objections on the score of cruelty or delicacy, which some have brought against biology when properly taught with dissections, etc.; it leads the young out into air and sunshine, makes them find fellowship with what is most pure and joyous in nature, and furnishes the germs of an interesting avocation which may minister delight and refreshment during the years of later life.

Mineralogy.—Knowing of a place within easy distance of the school-house where quartz-crystals could be found, and also of a limestone quarry not far away where crystals of calcite occurred, and desiring presently to start a class in mineralogy, I contrived to stroll with a few pupils to the “crystal-mine” one day. Such enthusiasm followed the discovery of the quartz vein, which extended for a rod or two through a gangue of calcite, that the boys at once “staked out their claims,” and became excited prospectors and diggers. For a week, rain or shine, an early observer might have beheld ambitious boys stealing toward the “lead,” armed with every conceivable instrument of digging, from a spoon to a crow-bar. During this time the matter of studying minerals was broached and an earnest class easily formed. We began with our quartz crystals, and before we had done with them were masters of such technical terms as diaphaneity, tenacity, lustre, hardness, streak, hexagonal prism, terminal pyramid, gangue, etc. Most of us had also learned to blow a continuous jet through a blowpipe, and to understand the properties and functions of the common reagents. We then proceeded with calcite in the same way, each pupil having in hand a specimen of his own collecting so far as practicable.

As the boys were absolute tyros, the first aim was to encourage patient observation, and independent judgment. To secure this,

each pupil wrote independently his description of the mineral in hand, all working on the same species. When all were done we compared results. One pupil was called upon to read his first observation. Perhaps this was his estimate of hardness. To aid in this estimate we kept in mind the scale of ten minerals usually adopted, but referred practically only to the thumb-nail, knife-blade, and a piece of quartz. Specimens that could be scratched by the nail ranged from 1 to 2 in hardness; those that could not, but that could be scratched by the steel, from 2 to 4, if the mark was very easily made, if force was required, from 4 to 6; if steel refused to bite, while quartz would make a scratch, the hardness was between 6 and 7; while if quartz had no effect, the hardness was over 7. The first pupil, then, gave us his decision regarding the hardness of the specimen in question, as thus determined. All who agreed raised the hand. If any had written a different number, he stated it, and a brief discussion was allowed. The final decision of the majority was rectified if necessary 'by authority,' but all soon became so expert at judging hardness that few errors were made, and the variation between the judgments of the pupils was reduced surprisingly. A similar method was pursued with regard to specific gravity. Given the specific gravity of a few well known substances, ice, quartz, iron, gold, as a basis of comparison, and it was gratifying to observe how closely the students were soon able to approximate the relative weights of minerals by simply balancing them in their hands. These rough estimates should have been followed by delicate water-weighing if we had had the requisite apparatus. We indeed devised and made a simple hydrometer, but it was not sufficiently accurate for exact work. We did not attempt a study of crystallization during our short term, but made, each for himself, all the blow-pipe, and chemical tests necessary for the description and determination of perhaps fifty of the more common minerals. Nothing was committed from the book, which was, however, found very useful for reference and help over hard places. The class became familiarly acquainted with the minerals of their own town, knew where to find them, how to describe and name them; and of what they were composed. Nearly every pupil began a private collection, and all, I think, retain an interest in minerals. These were the immediate practical results.

Biology. This I have never taught. My observation of its teaching by others, however, has suggested to me several things which I

should try to do, if I were to learn and teach it, and several which I should hope to avoid. Whatever the living creature might be whose structure and development was first to be considered, I should wish in the hands of every pupil. Whatever organs were to be studied I should wish dissected out by the pupils, if practicable, if not, by the teacher before the class. I should not be content with pictures or paper models; though if circumstances forbade anything better, I should welcome these rather than rely upon the text alone. If I were forced to use nothing but a text, I should decline either to study or to teach. I should avoid, if teaching, the feeling that I must lead the pupils to see in the specimen precisely what I might see there. I have seen teachers oppressed with this notion. Possessed by a certain theory, belief, or dogma, such teachers will not accept cordially any observation by a pupil unless it has an obvious tendency to establish the position previously taken by the instructor's mind. Thus an evolutionist directing a class to the examination of a lobster rejoices in those pupils who first discover the analogies and homologies which link that creature to the crab, while he is in danger of disparaging observations which may seem to have a tendency to controvert the theory in mind. On the contrary, a teacher committed against evolution might welcome too warmly just those observations which the evolutionist was prone to disregard. *True teachers must let their pupils look through achromatic lenses, not those tinged with their own convictions.*

On the other hand, I should try to avoid leaving the students too much unaided. While their judgments should not be over-ridden, or forced to premature decision, there are many ways in which they can and should be assisted. Thus I think it would be an excellent plan, (after a student has patiently studied a sea-urchin, we will say, by himself, until he has discovered all that he can see without extreme weariness and discouragement) for the teacher to sit down by him, and point out clearly and in detail, every feature of the animal's structure which he knows himself. The pupil having thus been taught what to look for in one case, will be able to attack a new species with vastly more intelligence, satisfaction, and economy of time. Moreover, after a few type specimens have been thoroughly studied, with dissection, accompanied by careful drawing of the separate parts, so that the student has obtained a distinct knowledge of the meaning of technical nomenclature, he is then in a position to read with great advantage the best works on these and allied species,

and the teacher may well place in his hands a list of the books best suited to his needs.

In dealing with large classes, it seems to be a good plan to give each member a specimen of the same species—a star-fish for example, and then after a few moments of silent examination, to call upon some one to tell all he has observed. The points mentioned may be written upon the black-board. When this is done, call upon each member of the class in turn to add whatever he has seen that has not been mentioned. When all are done, let the teacher call attention to any features still unnoticed, and then let one be appointed to combine all the observations recorded on the board into a paper describing the specimen.

Physics. With an average class of school children there is danger in the exclusive use of fine apparatus, lest the pupils come to believe that the properties of matter, and the principles of force illustrated, are somehow inherent in polished glass, glittering brass, and varnished mahogany. Therefore, for many experiments, home-made, *pupil-made*, apparatus should be used. As it is, however, important that exact results be obtained, and the power of delicate manipulation acquired, some pieces of the finest mechanism attainable should be used, and used by the pupils. There are cases on record in which the experiments which are useful to illustrate this science have been made to excite admiration, surprise, and amusement. This is evident from a glance at the numerous scientific toys which are listed in the catalogues of the leading dealers in physical apparatus. Popguns, and bottle-imps, balanced horsemen, dancing puppets, and a whole array of electrical fireworks show that there is danger of losing sight of the true aims and methods of science-teaching.

I can hardly imagine anything more delightful than for a well taught teacher of physics to meet an intelligent and sympathetic class, in a well constructed and thoroughly furnished class-room. The novelty of the theme, the valuable practicable applications of the science, the clean nature of the work, the precision and certainty of the knowledge to be imparted, all conspire to lend confidence to the teacher, and to arouse interest and delight in the class.

Chemistry.—All that has been said of the satisfaction of teaching physics, might, I should imagine, be repeated with emphasis concerning chemistry. I shall always regret that my own instruction in this beautiful science was practically useless, since it was entirely by

lectures, and quite divorced from laboratory work. The fact that these lectures were delivered by one of the very best teachers of chemistry, and that they were fully illustrated by elaborate experiments performed daily before our eyes, may serve to demonstrate the futility of attempting to teach chemistry outside the laboratory. Had the equipment of the college been such as to make it practicable for us to perform each for himself, one-hundredth part of the experiments we saw, we had known more chemistry.

Perhaps in no better place can I introduce what seems to me to be one of the most important points in connection with all science-teaching. I mean the constant development of the systematic nature of each science, and the organic relation which exists between all the sciences. Too many pupils study chemistry, for example, as if it were a mere catalogue of facts, which are to be committed to memory, and which might as well be approached in one order as another. They get a taste of the fruits that are borne on the tree, but never catch sight of the symmetry of the tree. Still more emphatically is this true of the relations between allied sciences; and for this very reason, although the reason is not in all cases clearly apprehended by those who feel the force of it. Many teachers have a half-instinctive aversion to admitting the sciences here discussed into the curriculum. The point is this: language furnishes an unbrokenly progressive course, from the simple lessons in orthography, and etymology, through the simpler forms of syntax, up to the analysis of the most intricate constructions of our own and the classic tongues; so that a boy may begin the study of language on his entrance to school, and go on steadily step by step with the satisfying consciousness of regular advance. The mastery of each lesson is rendered easier by what has gone before, and each mastered lesson is a step toward the apprehension of those that are to follow.

The same is true to a large extent in mathematics, which, however crudely it is too frequently presented, may be made by a competent master a means of continuous mental development; but, so far as I am aware, no school or college has as yet determined upon the logical sequence of scientific studies, or, at the least, there is no general agreement in practice. One of our best colleges requires its students to attack biology several months before a syllable of chemistry is known, and botany and mineralogy are often not considered at all in connection with the work in geology. It would seem that the proper order for the succession of the sciences could

be determined on the following lines of thought. 1. The simpler and more elementary should precede the more complex. The lower should precede the higher. 2. We may determine which are higher and which are lower in accordance with Hopkins' law of the 'conditioning and the conditioned,' *i. e.*, whatever is a necessary condition of the existence of anything else is, as a rule, lower than that for which it is a condition. For example, take the three kingdoms, the mineral world is, in general terms, a necessary condition for the existence of the vegetable world, and the vegetable world is necessary to the development of the animal world. Therefore the order of rank beginning at the lowest is mineral, vegetable, animal. If we extend this series, we find that chemical and mechanical laws underlie the structure of the mineral world—and hence are more fundamental; while above even the animal world rise the lofty realms of mind and of spirit. Suppose, now, that an organic course of study could be so planned that the student should first of all be introduced to the more common elements which enter into the structure of the inorganic world, and be led to investigate the laws which govern their chemical synthesis and analysis (at first in as elementary a way as you choose), and there be advanced to the consideration of the physical properties of matter, and the laws of motion and force. Having studied to a certain extent chemistry, physics, and mineralogy, he will be led to observe how from this inorganic world life first appears to be developed in the humbler forms of vegetable growth, and he will advance with keenest delight through so much of botany as circumstances render best. Zoölogy will naturally follow, and then geology, coördinating the result of his previously acquired knowledge of minerals, plants, and animals, with new facts regarding their historical appearance on the earth, and such cognate truths as are so admirably set forth in Huxley's *Physiography*; while Astronomy may be taken as extending to other worlds, the methods of investigation which have given us knowledge of our own. Biology may well come next, and, and, if they have not been previously considered in connection with zoölogy, human anatomy and physiology. The student will by this time have a solid foundation under his feet as he approaches the study of the mind of man, and prepares to consider also the supreme questions involved in moral philosophy. While this is not intended to be a final or exhaustive treatment of this important subject, I believe it contains important suggestions which are worthy of consideration. It will also appear

from what has been said that if these views are correct, it is more logical to introduce the elements of chemistry and physics into Secondary schools, and leave biology, geology, etc., for the higher grades than to reverse this order. It is true that much of each of these studies can be brought within the reach of very youthful minds, and that fact may blind us to the essential reasons which should determine the order in which they are taken up. It is not essential that those branches which are in every respect easiest, should be presented first; it is rather those whose facts and principles, some of them at the least, are necessary to the proper understanding of the others. An elementary study of chemistry in a lower school does not by any means preclude a review, and a more exhaustive study at a later date. I have enumerated some of the sciences which are taught in Secondary schools, with hints as to what seem to me good ways of teaching them, and suggestions as to the proper order of their introduction; from a comparison of what has been said regarding them severally we may draw a few inductions concerning methods of science-teaching in general.

1. The teacher should be a well-trained and zealous student, and if possible well-informed of the science to be taught.
2. He should be equipped with a properly constructed and thoroughly furnished room.
3. He should not be under the control of persons less intelligent than himself.
4. Every science should be studied from actual 'specimens,' in the hands of every pupil.
5. Drawing is a powerful auxiliary to correct observation.
6. All necessary manipulations, experiments, etc., should be performed by the pupils, who should to a certain extent employ instruments of their own manufacture, to avoid the danger of supposing that elaborate mechanism is the necessary medium for the operation of natural law, but who should also be trained in the use of the best apparatus that can be secured.
7. Experiments should not be made for show, but kept duly subordinate to the illustration of principles.
8. Inferences should be drawn by the pupils, aided, when necessary, by suggestions from the teacher.
9. Teachers may err from a fear of *telling* either too much or too little.

10. The disconnected results of daily laboratory work may profitably be united by the teacher in a series of terse, supplementary lectures.

11. Attention may be strongly riveted to salient points by judicious quizzing.

12. The sciences should be taught in such a way as to reveal their unity, and the organic relations of their subdivisions to one another and to the whole.

13. The steps in any science are observation and experiment, comparison, induction, verification.

In conclusion I wish to refer to one or two serious difficulties in the way of introducing into Secondary schools such science-teaching as we should all like to see.

1. The courses of study in our lower schools are determined largely by the requirements of the colleges. So long as these demand no thorough training in elementary science, school boards are not likely to require it, and teachers will not, and cannot to any general extent, introduce anything like laboratory work. Unfortunately a common inquiry with regard to qualification, and with regard to effort, is: "what is the least that will be insisted upon?" rather than, "what is the best that I can give?" Many pupils, and possibly a few teachers, are as reluctant to dot an undotted 'i' after the stroke of four, as Adam Bede's co-laborers were to finish driving the nail which was partly in when the clock announced the end of their working-day. Yet Adam's rebuke cannot be forgotten. "The very grindstone will go on turning a bit after you loose it."

2. In many cases where there is a real desire on the part of teacher and pupil to pursue some branch of science, there is felt on the teacher's part a lack of thorough preparation for the work, owing to the very general neglect of these studies in years ago.

One means of obviating both these difficulties seems to be provided, at least in part, by that large voluntary union of science-students, known as the Agassiz Association. In many cases which are within the writer's personal knowledge this society has been successful, through its *esprit de corps*, in inspiring young and old with such an interest in science as has led them to disregard the fact that no provision for these studies has been made in the regular curriculum, and to devote extra time to voluntary, and therefore, profitable labor. Through its influence museums containing local minerals, animals

and plants have been established, collections of the best scientific books have been made, laboratories have been constructed, rude enough, doubtless, in many cases, but useful, and an interest has been roused, which in more than a few instances has spread throughout an entire community. The Agassiz Association has begun to meet the second difficulty by providing elementary courses of study, which are conducted by competent men by correspondence. To take one case by way of illustration. At this time one of the gentlemen connected with the Boston Society of Natural History is conducting a course of lessons in mineralogy. Under his guidance about a hundred and fifty classes are successfully working. The plan is very simple. A set of thirty numbered, but not labeled, specimens is sent to each class, together with a magnet, a blow-pipe, a few test-tubes, and Lesson I. in the form of a printed leaflet. This first lesson explains tersely such technical nomenclature as the student at first needs, and then details a few simple observations and tests, which the students are to make upon the first three specimens. The results of these prescribed observations and experiments are to be recorded on blanks furnished for the purpose, and these are mailed to the conductor of the course. He examines the reports, marks them according to their degree of fullness and accuracy, and returns them with such corrections and additions as seem needed, and with them sends labels for the three specimens already studied, and adds Lesson leaflet No. 2, which contains suggestions for work upon the next three specimens.

This very simple course of training in observation and easy description, is supplemented by a course in the elements of determinative mineralogy, illustrated as before by specimens furnished from Boston. There is no charge for this service, and specimens and instruments are furnished at cost. By availing himself of these leaflets, any intelligent teacher, even if previously entirely ignorant of the science, finds himself enabled to guide his pupils easily and successfully to a working knowledge of the elements of mineralogy. Indeed, it was by the help of this identical plan, that the results detailed earlier in this paper were secured.

Such, then, are the results which may be hoped for from science-teaching in our secondary schools, and such, it seems to me, are some of the best methods of attaining them.

UNITY OF STANDARD FOR COLLEGE ENTRANCE EXAMINATIONS.*

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Is it desirable for our colleges to have a uniform standard of admission? The question affects alike the university and the fitting school, for unless uniformity is beneficial to all grades of instruction, it must be an open question how far unity of requirement should be advocated.

The subject will be considered with reference to the efforts already made in this direction, the success of these efforts, and the advantages to be gained by the co-operation of the college in providing for a scheme of entrance examinations approximately uniform, and for similar plans of admission by certificate.

From a historical point of view, what has been done in the direction of securing unity of standard for admission?

First. The Regents of the University of the State of New York conduct in every school in the State desiring it, examinations in the subjects ordinarily required for admission to college. The college entrance diploma granted by the Regents, is accepted in lieu of examinations by nearly all of the colleges in New York State, by Williams and Amherst, except that in the latter college an examination is required by the professor of mathematics, and by Wellesley as far as it covers the requirements of the college and fulfills the specified dates for examinations.

Second. The Association of the Principals of the Secondary Schools of New York has been most anxious to secure uniformity of standard among the colleges of this State. The utmost diversity now exists not only among the various colleges and universities, but even in the same institution where the varying requirements for different courses amount practically to those of separate colleges. It has been the desire of the Association, first, that some essentially uniform standard should be adopted by the colleges of the State; second, that the requisitions of no college should be, even for entrance to a single course, so low as to make it possible for a student to enter

*Read before the Association of Collegiate Alumnæ, at New York, March 31, 1888.

without completing his high school work; and third, that the colleges of the State should accept the Regents' diploma, instead of an entrance examination, for the subjects covered by it. No agreement has as yet been entered upon between the higher and the secondary institutions of New York—the colleges have not as yet shown the same interest in the subject as have the schools—but the desire for such an agreement upon a uniform standard is so strong that the pressure from below must eventually prevail.

Third. All of the women's colleges accept the certificate of the Harvard examinations for women when covering the same ground as their own examinations.

Fourth. The Schoolmasters' Association of Pennsylvania and the adjacent States at its annual meeting in Philadelphia, November, 1887, discussed the question of uniformity of requisites for admission to college, and held a conference with representatives from the University of Pennsylvania, Princeton, Rutgers, Lafayette, Muhlenberg, Haverford, Swarthmore, and Johns Hopkins. A series of propositions was adopted having in view important modifications of the present requirements in the direction of examinations upon subjects rather than text-books, the omission of technical examinations in arithmetic and geography, uniformity of standard in English, and guarding against changes in requirements without due notice. All of the propositions look towards a closer relationship between the schools and colleges. A second conference was held during the following holiday recess between the Association of Colleges and the Schoolmasters' Association, at which representatives from Columbia and Cornell were also present. The same propositions were again discussed, and also the question of admission by certificate. The recent date of the conference precludes any statement of what its permanent results have been, but the plan proposed is entitled to the highest commendation.

Fifth. An association has been formed among the colleges of New England for the purpose of securing uniformity in common requirements. This association is composed of thirteen of the New England colleges, but since it was organized scarcely two years ago, and has only advisory, not mandatory powers, it is as yet only an experiment. It is, however, an experiment from which much is to be hoped. Letters have been received by the secretary of the Commission from all parts of the United States, showing great interest in the movement and predicting its usefulness, President Gilman,

of Johns Hopkins, among others, having expressed himself very earnestly in favor of the plan. "The Commission seeks only uniformity in common requirements," writes Professor Poland, the secretary of the Commission. "This does not mean that each college shall require precisely the same things; for example, Harvard and one or two others have a requirement in physics while others do not. Again, one college may require more in a given subject than another. Uniformity means that as far as we go in any particular subject, we shall seek to impose the same requirement." While all of the colleges of the Association have not as yet adopted all the suggestions of the Commission, it seems not unreasonable to believe that they will do so in time.

Sixth. The position taken by the University of Michigan—the most important movement in this direction yet made in this country. Standing as the university does at the head of the educational system of the State,—a system from the first modeled after that of Prussia—its policy has always been to unite the secondary and higher schools of the State in a scheme of education at once symmetrical, thorough and far-reaching in effects. It has not yet reached its ideal, but it has accomplished certain definite results. Forty-one schools, thirty-three in Michigan and eight in Illinois, New York and Minnesota, now have the privilege of admitting their graduates to the university on diploma. *The diploma privilege of Michigan is not the certificate privilege of other colleges*—there is a fundamental difference. By the diploma plan, the university admits graduates of those schools that have been personally visited and examined by the faculty of the university at least every three years, the faculty always reserving the right of visiting the school at any time, or of withdrawing the diploma privilege if any important change has been made which impairs the efficiency of the instruction or modifies the course of study. No school is granted the privilege on its general reputation either in the past or in the present.

The university confers four different degrees—after the completion of a four years' course. For entrance upon three of these four courses, preparation in at least two foreign languages is required. For admission to the fourth course, no knowledge of a foreign language is demanded, but additional requisitions are made in English, history and science. These requirements of the various courses are not, therefore, absolutely uniform. It is the opinion of the univer-

sity, however, that the interests of higher education would be greatly promoted if the different preparatory courses could be made more nearly equal than is now the case with respect to the mental discipline they afford, and that the unified course at which it is proposed to aim should consist of thorough disciplinary work in,

1. Greek and Latin, with French and German as alternatives.
2. Mathematics and physical science.
3. English language and literature.
4. History.
5. Biological science.

While the fact is recognized that an entirely uniform course of preparation for the university is, under all circumstances, out of the question, the weight of opinion seems to be in favor of establishing requirements for all courses which shall be uniform in all respects except the kind of linguistic requirements.*

The result has thus far been satisfactory both to the schools and to the university. President Angell in his address at Chicago last summer before the National Educational Association, says :—
“ Among the advantages which our seventeen years of trial of this system has secured, the following may be named :—

First. It has convinced the schools, the school-boards, and the public that the university has a real interest in the welfare of the schools.

Second. The pride and interest which is thus awakened among the citizens in their own school is a source of new strength to the school.

Third. The university by the visits of its committee can be of direct service to the teachers and to the school board.

Fourth. The visit of the committee gives a valuable stimulus to both teachers and scholars.

Fifth. The visit of the University Committee to the school is of service in guarding the university faculty against the peril of asking the school to do more than it can wisely undertake.”

On the other hand, he believes the diploma relation has proved as servicable to the university as to the schools. “ It has enabled the university to raise its standard. It has led to much greater uniformity in the courses of preparation than formerly prevailed. It has increased the number of university students. It has kept the

* These facts in regard to the present opinion of the university are kindly given by a member of the University Faculty.

university in touch with the schools and has secured a substantial unity in the educational system of Michigan." Similar emphatic testimony as to the success of the plan comes from President Payne, of the State Normal College of Tennessee, until recently professor of pedagogy in the University of Michigan, and from other professors of the university.

The plan as viewed from the standpoint of the schools seems to have proved equally satisfactory. A gentleman connected for a number of years with the leading high schools of the State writes: "The good teachers of the State work happily and without any sense of being driven. The relationship between the university and the schools has been an inspiration to all the schools." A later experience with one of the finest preparatory schools in the East has led him to add that he is more fully convinced than ever before that an attempt to meet the varied and varying requisitions of different colleges involves needless anxiety and a sad waste of time and teaching power. Conversation with persons connected in various ways with the Michigan schools leads to the conclusion that this emphatic approval of the Michigan system fairly represents the opinion of the best instructors of the State. Another thing points to the same conclusion, and that is the fact that the number of schools asking for the diploma privilege is constantly increasing. Were the system not satisfactory to the schools this would not be the case.

The tendency, therefore, on the part of both the university and the schools seems to be to perfect the existing relationship in the direction of a still more complete unification of standard.

In noting the progress of the movement in other countries, we need only allude to the Prussian system. Soon after the government turned its attention to the subject of education, nothing was more apparent than the lack of concert between the universities and the schools. No definite line of examinations had been laid down, and the plans of the government were in a great measure frustrated by the fact that both the universities and the schools conducted the entrance examinations. "There was no uniform standard of examinations," says Matthew Arnold. "The schools made the standard high, and the universities made it low." Various enactments remedied this defect by providing that the leaving examinations should be held at the *Gymnasien* only, and now no one as a general rule can attend university lectures at all without a certificate from the *Gymnasien* testifying that the candidate is considered fully "ripe." To

no one thing does it seem that the superiority of the Prussian system is more due than to this intimate connection between the schools of all grades. This relationship does not imply that a cast-iron system is imposed upon the schools by the universities or by the government, for within certain limits great freedom is left to the secondary schools. It does mean that recognized and responsible authority determines whether the student is able to pass with advantage to himself and to the State from the lower to the higher grade of instruction. The certificate necessary for entrance upon university work does not perforce imply that the candidate for the university has pursued a certain prescribed amount of work, but it is a certificate of his "ripeness," or ability to prosecute his work in the university.

Experience then seems to show that there is a growing tendency in our own country towards uniformity of requirement within certain limits—a tendency seen in the introduction by the Regents of this State of college entrance examinations; in the desire of the secondary schools of New York State to secure approximate uniformity; in the acceptance of the Harvard certificate by all the women's colleges; in the conferences of the schools and colleges of the Middle States, in the formation of the New England Association of Colleges and Preparatory Schools; and in the unification of the educational system of Michigan. More successful than any of these attempts, we have the example of other countries and prominently that of Prussia.

What, then, are the advantages of a flexible system of uniform requirements? Several may be suggested.

First, it ensures a dividing line between the work of the colleges and that of the secondary schools. It seems safe to hazard the sweeping assertion that every college and university in the country is now doing more or less of what is properly preparatory work. One of the most successful instructors in Harvard College says: "To judge from personal experience with many undergraduate students, the two things which the candidate for entrance to college does not know are: how to add, and how to remember or represent geographical facts." Certainly it is not the province of the college to teach addition or geography, nor yet to supplement the work of the schools in English, as most colleges are now compelled to do.

On the other hand, the work of the preparatory schools often overlaps that of the college. High schools are teaching the physiological and psychological aspects of Hamlet, while at the same time con-

tributing an abundance of material for a second addition of "English as She is Taught," High school teachers have become "professors," while high school students carry on "original investigations." High school classes have their class organizations, their secret societies, their periodical publications, and high school graduates their "class days" and "commencements." All the social and intellectual machinery of the college is fast being imposed upon our secondary schools, and this while students enter college from the grammar school, institutions are dubbed "universities" which could not enter their graduates at a respectable college, and colleges with scarcely a reputable high school course confer the degree of Ph. D. for non-resident study. An association of colleges agreeing upon certain general requirements and refusing admission to students who do not conform to these requirements would do much to fix the boundaries between the different grades of instruction and bring order out of this educational chaos.

Second, such uniformity would do much to prevent the admission of poorly prepared candidates. It is unfortunately true that most colleges need protection against themselves. Every institution, unless supported by the State or so heavily endowed as to be independent, needs students. There is the temptation, always resisted in theory, less often in practice, to increase, without sufficient grounds, the number of schools receiving the certificate privilege, to lower the standard as set forth in the catalogue, to give the students at the close of an examination the benefit of the doubt, to attribute errors and defects to the fatigues of the journey or to nervous excitement, and thus in various ways to admit students not properly qualified. The complaint so often heard in college circles of the number of poorly prepared students is made by college officers who have themselves violated their own published requirements and lowered the bars for the entrance of boys and girls not yet through with a high school course.

Third, greater unity of standard would lead to more reasonable and systematic requirements and thus benefit both college and school. At present, each college is at liberty to change its requisitions from year to year, and this is often done according to the whim of a single instructor, or the fancied needs of one department. Too little thought is given to the condition of the secondary schools; of the difficulty among the smaller ones of giving college preparation at all; of the great question which every school has to meet of how

to combine the work leading up to college courses with that which ends with the high school. Colleges and schools are now working along independent lines, and each complains of the lack of sympathy on the part of the other. Until the colleges co-operate among themselves, there can be no co-operation between the colleges and the fitting schools, and without this concerted action, our educational structure lacks its chief corner stone.

Fourth, the lack of uniformity often places both schools and students in a most disadvantageous position. Thus in the four women's colleges, while the requirements in mathematics are identical, and those in the classics practically so, in the modern languages, especially English, there is the greatest diversity. There seems to be little reason why in English, for example, one college should require a specific examination on Burke, Landor, and Chaucer, another college one on Milton, Goldsmith, Shakespeare and Franklin, and a third no specified reading whatever. Equivalents here are impossible, as essays are assigned bearing on the special works required by the college. Thus it happens that if a girl who has decided to go to Bryn Mawr is preparing in a school which sends most of its graduates to Wellesley, she may have a good knowledge of the works selected by Wellesley while entirely ignorant of those required by the college she is to enter. The requirements in English made by Vassar, Wellesley and Bryn Mawr for entrance in 1888, in addition to grammar, rhetoric and composition, comprise a knowledge of fourteen different authors and eighteen different works, while Smith makes no requirements for reading. In 1890, Vassar, Wellesley and Smith require eleven authors and eighteen works, and the diversity will probably be increased by the requirements of Bryn Mawr, which has not yet made its announcement for that year. Where the same author has been selected by two colleges, as for example Shakespeare, the works required are in no instance the same. Such diversity seems a needless waste of time and energy. An agreement among the heads of departments, or among the colleges, on certain authors to be read, would be of advantage both to students and to school and college instructors.

We believe, therefore, that a system of common, or equivalent requirements would do much to correct this overlapping of work in high schools and colleges; to elevate the low grade of scholarship now accepted by the college, though accepted under protest, and to remedy the unreasonable demands made upon the schools through lack of uniformity.

For the attainment of this end an association of the colleges seems necessary.

Such an association among the colleges could do more than unify requirements. It would be possible to establish an examining board which should prepare questions, conduct examinations, and issue certificates to successful candidates, these certificates to be accepted by any college in the syndicate. A similar recommendation was adopted in November, 1885, by a committee representing the preparatory schools of New England, but it has apparently not yet been acted upon by the colleges. Wellesley and Vassar already provide for examinations at various places in the South and West, as do Harvard, Michigan, Yale and Princeton. It seems poor economy for six or more colleges to conduct individual examinations in Chicago and elsewhere, when one examiner and one set of questions could be made to answer for all if only an equitable agreement could be reached regarding requirements.

The possible advantages of such an association are even greater in regard to the question of certificates. There is now absolutely no uniformity, and any system seems impossible while each college is irresponsible. Certificates are accepted on the general or expected reputation of a school, and not by virtue of personal and thorough examination. They are recklessly granted to unendowed private schools. The certificate of one school is accepted by one college and refused by another. Partial certificates are accepted. Certificates are received by one department of a college but not by others. One college discriminates in favor of pupils prepared by its own graduates, another in favor of the Regents, and a third makes apparently no discrimination at all. Parents and pupils demand early admission to college, university presidents urge it, the colleges bid for the patronage of schools by granting certificates on loose conditions, and private schools seek the privilege as an advertising scheme. One college boasts of granting no certificates at all, and another that it confers the highest good on the greatest number by reaching many schools and pupils through this means. The result as concerns the colleges, is that each is tempted to call attention to the peculiar shade of blackness in the complexion of its neighbors, and as regards the schools, for many of the best of them refuse the privilege when offered. The granting of certificates *as practiced at present*, seems one of the most objectionable features of our educational system. If certificates could be granted by all of our colleges on the same terms, with proper modifications and safeguards, these

safeguards comprising personal, thorough and frequent visitation of the schools, the refusal of all certificates of schools not recognized by the association of colleges, and that the privilege should be asked by the schools, not offered by the colleges, then with these limitations the privilege might be, not an injury, but a benefit, as has been the case in Prussia and in Michigan.

It does not seem wholly utopian to anticipate the formation of such an association of colleges and the ultimate success of such a policy. Smith and Wellesley are already members of the Association of New England Colleges, and Wellesley has accepted for 1887, 1888, and 1889, the requirements in English adopted by the Association. Vassar would be ready to fall into line with any such movement on the part of the colleges of New York. There is a strong desire emanating from Johns Hopkins for the unification of the colleges and schools of the South through the establishment of similar requirements for entrance to college. The most successful example of Michigan has been partially followed by other State Universities at the West.

May not these and other facts be taken as indications that our educational history is to be similar to our political history? At the historical basis of our government we find the idea of pure democracy and the exaltation of the local government. But as the colonies grew, the application of the theory became impossible and we passed into the confederate stage. This was the transitional period of our political existence from which we have grown into a strong organic nationality which preserves, we justly believe, a proper balance between the anarchy of local government and the absolutism of unlimited power. In our educational history we have not yet left behind us the idea that each school and college is to be a law unto itself. But self-defence is already compelling us, as it did the colonies and states, to enter upon the next stage of development. The germs of educational confederation are already well developed in New England—the birthplace of American political confederation. The seed has been planted in New York, in the middle States, in the South, and in the West. The plant is fully grown in Michigan. It seems not unwarranted by fact and historical precedent to believe that out of these local unions will come in future a general system of education, not perhaps homogeneous, but as united and as harmonious as has become our political system after nearly three centuries of struggle toward an ideal form of government.

SHALL WE TEACH ETYMOLOGY, AND HOW?

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That the elementary study of English Etymology has grown increasingly unpopular, until it is now in danger of being abandoned by our schools, can neither be denied nor (from one point of view, at least) be wondered at. No study of facts is interesting, unless either the facts are interesting in themselves, or else they are exhibited in such relation to their underlying principles as to acquire the interest belonging to science. Now, Etymology (as one need not say) is peculiarly a study of facts; these facts have but small interest in themselves, except to a select class of minds; and, as commonly taught, they are shown, not in relation to their underlying scientific principles, but in their crudest form and in the most empirical fashion. In a word, the study is but too often a sickening "cram," as offensive to teacher as to pupil. A wholly undigested mass of apparently unrelated statements is called Etymology; and the exercise of mere verbal memory required to learn them is as gigantic as that required to commit a chronological table.

And yet, unless the whole modern movement in language teaching is wrong, unless all modern philology is a mistake, few studies cannot better be spared from the school curriculum than English Etymology. The most composite of all tongues, English especially needs for its intelligent understanding, to say nothing of its intelligent use, to be known etymologically. The story of the origin of the oldest English, of its development on British soil, and of its modification by Norman-French and other influences into modern and, finally, into present English; the relationship of this tongue both to its immediately cognate and to the other Indo-European languages; the constituent parts of words, their nature and their modes of union; the sounds used in English and their numerous modifications;—these and other such topics would seem in this day essential parts of any instruction in English: All along the line of language-study, ancient or modern, for practical use or for pure scholarship, such topics form more and more staple parts of the work. English certainly should not be the last to share in the benefits conferred by the new methods.

More than this, advanced instruction in English is necessarily scientific; and, as the college or university student can hardly be asked to waste his time on mere elements, it is certainly an error on the part of the schools to drop out of their course the only study that can be relied upon to start the intending Freshman on his language-studies scientifically. Just fancy (supposing it were possible) a proposal to send boys to college wholly ignorant of Latin or Greek syntax. Of course, they come with little enough, as it is; but upon this little the advanced instructor can at least build. Yet it is far from unusual to find boys in college wholly ignorant of the fact that such words as *constitution* are made up of significant parts; while to expect them to know anything of the Anglo-Saxon side of our tongue is absolutely Quixotic.

But even this is not all. The study of Etymology not only illumines the whole field of language, but it enables even the most elementary pupil to learn his language and use it with greater certainty. Historical English grammar is so essentially different from English grammar as taught by the empiricists, that one can only wonder that the older methods survive at all the exposure of their erroneousess. Pronunciation turns wholly upon the consideration of language-sounds as such; while many questions of grammatical purity, of the choice and use of words, etc., cannot be *fully* understood, except in the light of Etymology.

The question, Shall we teach English Etymology? does not, then, mean only, Is English Etymology worth knowing for its own sake, for a knowledge of the facts it teaches or of the scientific principles that underlie it? but, Does English Etymology so illumine the whole study of the language as to justify its being made a part of English language-teaching?

Let us cite a few well-known examples. The English verb, once taught as comprising, first, "regular" verbs, those whose preterites end in *d* or *ed* or *t*, and second, "irregular" verbs, all the rest, is, when treated etymologically, easily arranged in a classification which, when once mastered, substitutes regularity (in nearly all cases) for irregularity, and gives a feeling of certainty for that distressing sense of doubt which afflicts the half educated. Formerly, pupils learned the "irregular" (strong) verbs by a dead effort of memory or by experience or by both; and many were left in adult life wholly unable to say whether the verb *go*, with *have* or *had*, became *went* or *gone*,—the verb *do*, with either auxiliary, became *did* or

done. Now, at least a part of this uncertainty can easily be removed, and the pupil can have general truths to fall back upon instead of arbitrary statements.

Or who has not wondered why *route* should (most correctly) be pronounced *root*, while *rout* is invariably pronounced *rowt* (*ow* as in *plow*)? or why *ei* in English is commonly *ā* or *ē*, and yet in a few cases *ī*? Etymology shows at least the causes that were active in these and other such cases, and so equips the pupil with a reason for his pronunciation in many of the most troublesome cases.

And so in Rhetoric. The rule in favor of "Anglo-Saxon" English is a mere arbitrary *dictum*, based on the usage of certain good writers, until, in the history of our language and a careful examination of its several elements, the superior simplicity and strength of many derivatives from Anglo-Saxon are felt and understood. Nor is this all. The rule in favor of "Anglo-Saxon" English is only too often overstated, and the preferableness of that part of our vocabulary much overestimated. Nothing, perhaps, serves more adequately to correct this overstatement and overestimate than a full knowledge of the history of our language and the sources of our present vocabulary.

In short, there is hardly a field of English language-study the survey of which is not materially improved and made easier by a knowledge of Etymology.

Of course, two answers will be ready to all that is here alleged;—first, that the law of language is usage; second, that hundreds and thousands of English speakers—men, women, and even children—use their mother-tongue with substantial correctness, while they are totally ignorant even of the meaning of the word etymology, much more of the subject so called. But neither answer affects the argument here made, which is not for the practical value of Etymology in itself, but for its value as a help to other knowledge. Either our mother-tongue is to be learned wholly by "rule of thumb," or else whatever will help to make its study rational is of value and should constitute, in elementary form, a part of early training.

To the claim that Etymology belongs in college—not earlier, the reply may be made that its most elementary truths can best be taught by methods against which even Freshmen fairly revolt. Much exercise-writing, much analysis and synthesis of mere words, is necessary to place the fundamentals of the subject clearly before the pupil; and the school offers much better advantages for this.

kind of teaching than college offers. Of course, the subject belongs to advanced education quite as much as to the earlier course,—nay, more than to it; but the college teacher must have the ground broken, or he must lower the standard of his course from that which a college course ought always to attain. He may, indeed, assume a knowledge of elementary Etymology, knowing full well that the subject has in all probability not been taught; but he will then only land his class in hopeless fog—the most deadly enemy to students as well as to sailors.

If a frank question may be allowed, has not the increasing distaste for etymology shown by our teachers partly had its origin in the failure of so many “secondary” instructors to “keep up” in English? Conscientiously endeavoring to do their whole duty, but embarrassed by the multitude of the subjects which they are expected to teach, they involuntarily save time for Latin or Greek or Mathematics by slighting English, their mother-tongue, and that in which, therefore, they are at least to the *manner* born, if they have not a thorough understanding of it. O, for the days of such a differentiation of subjects of teaching in our secondary schools as now prevails in all colleges of the first rank,—the days of endowed private schools and of unstinted liberality on the part of our communities towards the public schools!

The propriety of teaching Etymology, then, being assumed, how shall it be taught?

First, and foremost, and all the time, not by hearing lessons on long, dry lists of words, but by making the subject rational step by step, topic by topic. Lists of words, especially in the shape of etymological dictionaries, are indispensable for reference; but they should be kept for that use alone. To ask any pupil, especially a child, to memorize them, is as foolish as it is cruel. If no better way of teaching Etymology can be found than that which has prevailed almost universally, and which has disgusted both teacher and pupil, the subject should at once be turned heartlessly out-of-doors and cast on the dust-heap of experimental follies.

But there is, of course, a better way. Keeping the lists of words for reference, and for this use only after the pupil has satisfactorily learned the fundamental principles, the teacher can approach the subject gradually, explaining one point at a time, exemplifying it fully by words written on the blackboard or selected almost at random from the reading lesson, and illustrating it with repeated exer-

cises made in the same way. The etymological nature and classification of words and of their parts, the many sounds employed in our language, their classification, and their modifications, the historical development of English and its relationship to other languages, the various changes in words due to many different causes;—these and other topics could be taken up and discussed, until the whole subject in its many details was fairly before the pupil.

Another point in the true method of teaching Etymology is a point in the true method of teaching anything. It is crystallized in the maxim "Make haste slowly." No time should be counted lost in which clear, intelligent views of any detail, no matter how small, are imparted; no ambition to "get ahead" should be fostered that measures progress *only* by the amount of ground covered. Iteration and reiteration should be the rule, cloaked, however, by the continual presentation of new matter, even if this new matter illustrates only old truths.

This end can be best accomplished, perhaps, by selecting passages from one or more good writers, analyzing every instance in it of the truth under discussion, and then combining the matter so obtained into new examples of the principle. Has the teacher never taught Etymology in this way? Let him but try it, and find his reward in the eagerness of his pupils to take their Etymology lesson and in their bright and animated faces as the method brings into play their every mental faculty. But the teacher must be no dullard. The method is not for "fossils," who hold books while their pupils drone out in a lazy drawl words committed but not understood. And yet, if a teacher fears he has sunk into "the ruts," if he feels an apathy coming over him like a paralysis, here is a mental stimulus for him such as he will not easily find elsewhere. Let him plunge in boldly, like a half-wakened sleeper into his morning bath: the writer of this paper has no fears for the result.

PRACTICAL HINTS IN LATIN SYNTAX.

(1) THE INDIRECT QUESTION.

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In the preface to the second edition of his *Greek Moods and Tenses*, which is, I believe, retained in all the revisions, Professor Goodwin remarks: "He who imagines that every important principle of Greek and Latin syntax is as well understood and clearly defined as the rules for addition and multiplication in Arithmetic, has not yet begun to learn. It is no disparagement of even the highest scholars, therefore, to say that they have left much of the most important work to be done by their successors." How far Professor Goodwin might now be disposed to modify these expressions of nearly a quarter of a century ago, I do not know; but it is certain that they are not yet entirely superseded. Although the accuracy that he goes on to vindicate will, I fear, always, from the very nature of the case, elude the votary of grammar, yet, here as elsewhere, it is evident that we have not made the most of our opportunities. The ultimate causes may be in doubt; but the fact is, I am persuaded, that the *incidental* (as opposed to the *systematic*) method of instruction in syntax—that, for instance, indicated by Mr. Collar in the February *Academy*, p. 49, bottom—is, from our preparatory schools to our great universities, almost the only one. For the schools, this is perhaps the only practicable, if not absolutely the best, method; on the colleges, the authorities they follow and the authorities they produce, must fall the responsibility for that lack of freedom that comes only with the real grasp of great principles. Vagueness and uncertainty, outside of a few fixed formulæ, even in our best graduates, are sufficient proofs that reform is needed; and, when our manuals "hedge" by various non-committal phraseology and flatter their own ignorance by oracular solemnity or flippancy assumption, the state of things becomes intolerable. Whether there is any inaptitude for grammatical philosophy in our scholars may be a question; but there is no question that the practical character of our times leads us into other directions. It

leads us to prefer the historical method of study; and this method, however indispensable it may be in every department of investigation, in language, at least, discovers only suspended animation, unless its results are galvanized by logical classifications. No symbolism of thought can ever be made to express of itself all the speaker uses it to cover, all that the hearer must, from the circumstances and his own sympathy, receive it as covering; so that the mere development of phenomena is not the full genealogy of signification. On the other hand, the most practical, at well as the most philosophical, explanations of many syntactical phenomena have been given by those who view the subject rather from the logical than from the historical point of view; while the signal confusion, even in some well understood questions, of those who claim to have found in comparative grammar a veritable touchstone, emphasizes its limitations and the perils of those who take it in hand unadvisedly.

The object of these remarks is a plea for the systematic study of syntax; at the same time, I do not wish to be understood as claiming to be a fair representative of the logical method of study, or as basing its promises upon my own illustrations. I am satisfied, however, that, whatever be my own deficiencies in its use, the method itself must be looked to for the revision of our grammatical formularies.

Our standard grammars all warn the pupil against confounding the *indirect question* with the *relative clause*; but not one of them gives an available test for passing from English into Latin, where the discrimination of mood usually asserts itself as a real issue, even if the pronominal form is indeterminate. Some of them undertake to characterize the introductory verb, but they do it so clumsily that their examples exemplify too much for their statement; others gravely register useless platitudes on the nature of these dependent clauses and their respective relations to the leading verb. Of American writers known to me, only Fischer—whose Latin grammar is, for many reasons, a most valuable contribution to the study—discusses the matter with the fullness of its deserts; and even he fails to formulate a practical mode of differentiating *I know what you know*, according as the clause is relative or interrogative.

In the first place the difference is not fundamental, though, as it is developed, it acquires great importance. The relative and interrogative pronoun forms are identical in origin; the English and the Greek continue to identify them very largely; in Latin, the older

writers, and sometimes the classic, make no distinction of mood between the direct and the indirect question; and further, the peculiar force that seems to characterize the indirect question may be compared to the value assumed by the Latin perfect passive participle and gerundive, as substitutes for abstract nouns—assumed, in fact, by any modifying expression. The character of the introductory verb is not absolutely decisive, although the unity of the sentence prepares us for an interrogative clause as the natural supplement of an interrogative verb; yet, since interrogation is only a form of assertion, (being, in fact, ^htentative assertion,) an interrogative verb may be followed by anything that could follow a verb of assertion: hence *I ask what you ask* may mean *I ask the same question that you ask*, where *in what you ask* is relative; though such a clause after an interrogative verb is usually ^einterrogative.

Nor, after the distinction of mood is developed, can it be held that the subjunctive is a necessary proof that the clause is indirect question—except in a sense that would make all subjunctives such—for *choose whom you will serve* might make *serve* subjunctive after *whom* in the characteristic sense; and so the word remains indeterminate.

The proposed test of the indeterminate word is based upon the fact that *the indirect question is a proposition, the relative clause a term representing itself and the antecedent*: and, since proposition and term are, in a sense, reciprocal, if not identical, the significance of the test varies in proportion to their relation in any given case—a relation accompanied by a corresponding modification in the force of the introductory verb. As the reciprocal of *question* is *answer*, of *doubt* is *knowledge*, indirect questions may stand after verbs of statement (*sentiendi et dicendi*) as being assertions in conscious reply to questions assumed, if not real. And so, when reply is substituted for interrogation, the correlative of the indirect question is a declarative clause wherein the indeterminate word (to be proved relative or interrogative) is resolved into ^h*that* plus the terms of the answer; whereas the correlative of the relative clause is its antecedent—being identical with the terms of the answer, just mentioned—followed by a coordinate clause wherein the indeterminate word is resolved into *and* plus the antecedent. Hence:

- (1.) If the introductory verb is not one of statement, make it such.
- (2.) Assume the dependent clause as interrogative, and supply an answer.

(3.) If the meaning of the original complex is reached by putting an object (or subject) of the verb of statement a clause introduced by *that*, keeping the supplied answer in the same relation as the interrogative word had in the assumed question—then the clause is indirect question.

(4.) Otherwise the dependent clause is relative.

EXAMPLES.

I asked when he came.

- | | |
|--|--|
| (1.) I learned when he came. | (1.) I know what you know. |
| (2.) When did he come? <i>At noon.</i> | (2.) What do you know? <i>Algebra.</i> |
| (3.) I learned <i>that</i> he came <i>at noon.</i> | (3.) I know <i>that</i> you know <i>Algebra.</i> |
| (4.) I learned (something) <i>at noon,</i> | (4.) I know <i>Algebra,</i> and you know <i>Algebra.</i> |
| <i>and he came at noon.</i> | |

BIBLIOGRAPHY—PHYSICS.*

I. MECHANICS.

Maxwell. Matter and motion. Van Nostrand. 50 cts.

Deserving of very high recommendation because of its broad conceptions and its suggestiveness.

Magnus. Elementary Lessons. John Wiley & Sons. \$1.50.

A good formal elementary book.

Dana. Elementary Text-book. John Wiley & Sons. \$1.50.

Nothing specially novel or original, but well arranged. It would be better if more use were made of the metric system.

II. SOUND.

Tyndall. On Sound. D. Appleton & Co.

If but one book on sound is read, this should be the one.

* This list is purposely limited to such books as are most directly serviceable to high school and academic teachers, excluding the higher mathematical treatises and both French and German works.

Mayer. Sound. D. Appleton & Co. \$1.00.

Suggestive in the direction of simple experiments.

Sedley Taylor. Sound and Music.

Blaserna. Theory of Sound. D. Appleton & Co. \$1.50.

These two books are devoted largely to an exposition of the physical theory or basis of music.

Helmholtz. The Sensation of Tone. Longmans. \$8.75.

The work of Von Helmholtz inaugurated a distinct period in the physical theory of music. A book of the highest value.

Everett. Vibratory Motion and Sound. Ginn & Co. \$2.00.

An excellent introduction to the mathematical treatment of simple harmonic motion and its application to sound.

III. LIGHT.

Mayer and Barnard. Light. D. Appleton & Co. \$1.00.

Similar to Mayer's "Sound."

Lommel. The Nature of Light. D. Appleton & Co. \$2.00.

A good representative of the "International Science Series."

Wright. Light. Macmillan & Co. \$2.00.

The treatment is largely from the experimental point of view.

Tait. Light. Macmillan & Co. \$2.00.

Prof. Tait is one of the greatest living physicists, and everything he writes is worth buying. There is much in this book not readily found elsewhere.

Von Bezold. Theory of Color. Prang & Co. \$5.00.

Valuable not only for theory but suggestive in the line of experiments.

Rood. Modern Chromatics. D. Appleton & Co. \$2.00.

In character quite similar to the last named.

Tyndall. On Light. D. Appleton & Co. \$1.50.

Written with the author's inimitable popular style, but perhaps not so valuable as his book on Sound.

Spottiswood. Polarization of Light. Macmillan & Co. \$1.25.

An excellent book written from the descriptive and experimental point of view.

Lockyer. Spectrum Analysis. D. Appleton & Co. \$2.50.

A good introduction to the subject by one of the most successful investigators in this department.

Roscoe. Spectrum Analysis. Macmillan & Co. \$6.00.

The fourth edition of this standard work includes the most recent theories.

IV. HEAT.

Stewart. Elementary Treatise. Macmillan & Co. \$2.50.

Frequently used as a college text-book.

Tyndall. Heat as a mode of motion. D. Appleton & Co. \$2.00.

The merits of this book have made it so well-known that nothing further need be said of it.

Tait. Heat. Macmillan & Co. \$2.00.

One of the most recent elementary books on this subject by a recognized authority.

Maxwell. Theory of Heat. D. Appleton & Co.

The aim of this excellent book "is to exhibit the scientific connection of the various steps by which our knowledge of the phenomena of heat has been extended."

V. ELECTRICITY.

Thompson. Elementary Lessons. Macmillan & Co. \$1.25.

The sale of nearly thirty thousand copies of this book attests its excellence.

Maxwell. Elementary Treatise. Macmillan & Co. \$1.90.

This small volume contains much of the exact scientific statement of the author on electricity with only elementary mathematical treatment.

Cumming. Theory of Electricity. 2d Edition. Macmillan & Co. \$2.25.

Whoever faithfully studies this book will have a knowledge of all the important theorems respecting the nature and action of electricity. The treatment is largely mathematical, but without the use of the Calculus.

Gordon. Physical Treatise on Electricity and Magnetism. 2 Vols. Sampson Low & Co. \$10.00.

A useful addition to one's library; perhaps disproportionate attention is paid to specific inductive capacity.

Thompson. Dynamo-Electric Machinery. 3d Edition. E. & F. N. Spon, N. Y. \$5.00.

The best book by far on this important subject.

Faraday. Experimental Researches in Electricity. 3 Vols. \$20.00.

"A strictly contemporary historical account of some of the greatest discoveries and investigations."

VI. GENERAL PHYSICS.

Ganot. Physics. Wood & Co.

Deschanel. Natural Philosophy. D. Appleton & Co.

Daniell. Text-book of the Principles of Physics. Macmillan & Co. \$3.50.

These are the three best books in English covering the entire field of Physics. Daniell's is the latest, and the best for reference.

Tait. Recent Advances in Physical Science. Macmillan & Co. \$2.50.

One of the first books to buy for a library of Physics.

Stewart. Conservation of Energy. D. Appleton & Co. \$1.50.

The best book written in English on this greatest generalization of modern science.

VII. LABORATORY BOOKS.

Glazebrook and Shaw. Practical Physics. Longmans. \$1.50.

Ayrton. Practical Electricity. Cassell & Co. \$2.50.

Stewart & Gee. Elementary Practical Physics. 2 Vols. Macmillan & Co. \$3.75.

These books are an improvement upon Kohlrausch. The last is the best, but all are quite necessary in the physical laboratory.

Everett. Units and Physical Constants. 2nd Edition. Macmillan & Co. \$1.25.

Indispensable for reference. It has been translated into several languages.

VIII. PERIODICALS.

Nature. Macmillan & Co.

The best weekly scientific journal published. Is devoted to no special department.

London Electrician.

London Electrical Review.

These papers keep one *en rapport* with the best work in electricity, both theoretical and practical.

A LIST OF BOOKS FOR TEACHERS OF GERMAN.

PROF. CALVIN THOMAS, ANN ARBOR, MICH.

In attempting to prepare a list of books which might be useful to the teacher of German I have been embarrassed by the question whether I should include books in the German language. Nor was it at all clear whether it would be best to say anything about our more or less familiar American text-books. As it is, I am far from sure that my final decision with regard to these matters was the wisest that could have been made. A short list of books like that here presented must necessarily be imperfect in more ways than one; let me say, therefore, that I am always willing and more than willing to answer by letter any inquiries addressed to me with regard to the literature of my specialty.

As a book of reference for the use of teachers the best German grammar we have in English is the work of Professor Brandt, published by G. P. Putnam's Sons, price \$1.50. Second to this I should rank the larger grammar of Professor Whitney, published by Henry Holt & Co., price \$1.50. As a working grammar for pupils, I know of nothing which seems to me quite as good as the new Joynes-Meissner grammar, published by D. C. Heath & Co., price \$1.50.

Among the multitudinous school-grammars in the German language, one of the most popular in Germany is Heyse's *Schulgrammatik*, which can be had in this country for \$1.85. A larger and more comprehensive work is the "*Neuhochdeutsche Grammatik*" by Fr. Blatz, costing in America \$4.40. (Works of what may be called a technically philological character are purposely omitted.) As a source of information with regard to the relations existing between grammatical dogma and the actual usage of the German people, I know of nothing so helpful as Karl Gustaf Andresen's "*Sprachgebrauch und Sprachrichtigkeit*" in the new fifth edition, (Gebrüder Henninger, Heilbronn). It costs in this country about \$2.00.

As to the various German-English dictionaries, I have never made a thorough examination of their comparative merits. There is probably not much to choose between the two-volume dictionaries of Grieb, (\$7.35) and of Flügel, (\$6.40). The more important one-volume dictionaries I think may be ranked thus: First, Thieme-Preusser, (\$4.60), second Adler, (\$4.50), third Whitney, (\$3.50), and

fourth Koehler, (\$2.60). Of German dictionaries in German the two best are those of Sanders (three volumes, \$30.00), and of Weigand (two volumes, \$14.00). Weigand's work calls itself an etymological dictionary, but for etymology by far the best work to be had is the dictionary of Kluge (\$4.80). The great Grimm dictionary, which will be the *opus magnum* of German lexicography, is still far from completion.

Among the histories of German literature the best is that of Scherer, lately translated and published by Charles Scribner's Sons in two volumes. For the philosophical aspects of German literature a helpful little book is Hillebrand's *German Thought* (Henry Holt & Co., \$1.50). Bayard Taylor's "Studies in German Literature" is really an outline history from the earliest times to Richter, and is a good book. Price \$2.00. Precisely the same description may be applied to Dr. Hedge's "Hours with German Classics," Boston, Roberts Bros., 1886, price \$2.50. Of the very numerous German histories it is difficult to speak concisely. The valuable works of Gervinus, of Koberstein, of Goedeke, of Kurz, of Hettner have each their peculiar merits. But here is no place for details. An excellent work in its way, and one which several persons have thanked me for recommending to them, is Koenig's *Literaturgeschichte*. (Velhehagen & Klasing, Leipzig.) Koenig covers the whole ground from Ulfilas to Paul Heyse and is provided with a large number of excellent and interesting historical illustrations. With regard to German literature itself, authors, editions, available texts, etc., I have here no space to speak.

COMMUNICATIONS.

To the Editor of THE ACADEMY :

One practice that I have found very helpful in teaching Greek to beginners, and one that I have not seen as yet mentioned, is to have the pupils lay aside their Anabases in class and translate from word of mouth. I read a sentence or part of a sentence in Greek, and then ask some one to translate this, or if the sentence is suited to the purpose, I give the English and ask for the Greek. Then I ask for explanations of the syntax, reading enough Greek each time for the setting, and I require them to give the Greek then and there for sentences based on the words and syntax of the text.

The gain from all this is very great. The mind of the pupil has to be much more on the alert than when the printed page is before her, the ear is trained, and the memory quickened. But more than this, she does by this means what otherwise she is prone to do mechanically, or forget to do—she reads the Greek over many times before she comes into class.

This I count a great gain. A feeling for the Greek should be acquired as soon as possible, and this comes from reading it intelligently, and the habit of doing so should be formed at the outset. Then, too, the terrors of Greek composition vanish, and a delightful familiarity with Greek syntax is pleasantly gained.

Of course other work in other ways has to be done. Forms of verbs must be written on the board and sentences must be written in Greek, and there should be translation at sight and all else, but this is one eminently practical way of making Greek a living thing to the student, and of stimulating the mind to think, to remember, to reason, and to reflect.

ABBY LEACH.

VASSAR COLLEGE, POUGHKEEPSIE, N. Y.

INTERCHANGE.

Communications upon any educational topic may be addressed to G. R. CUTTING, LAKE FOREST, ILLINOIS.

HOW SHALL BOYS BE CARED FOR IN COLLEGE PREPARATORY SCHOOLS.

PRINCIPAL A. C. HILL, COOK ACADEMY, HAVANA, N. Y.

Parents and teachers alike are seeking an answer to this question. Four answers may be given and each has earnest champions. 1. Boys may be educated at home, in a public school or under private tutors. 2. They may be sent to a boarding school for boys. 3. They may be sent to a school town and allowed to board in private families. 4. They may be placed in a boarding school for both sexes.

The decision as to which of these plans is the best, must be based upon a consideration of the purposes of education. "Education," says Paley, "includes every preparation made in youth for the sequel of life." In its true sense the term involves training of the emotions and the will, as well as the intellect,—in short, the development of all the powers of youth, as a preparation for the truest living. Self-control, self-reliance, self-government, are to be cultivated in a boy as well as the ability to write hexameters and solve problems in Euclid. He must learn life by mingling in the life of his time. He can get his first contact with the world most safely in a well conducted school, under the direction of wise teachers. Moreover, all the powers and capacities of a boy are developing all the time and must grow harmoniously and symmetrically if the best results are to be attained. It is an exceedingly false notion that the mind can be trained in one school and the morals and manners in another.

With this brief introduction, let us ask ourselves which of the four plans is the best adapted to the desired end. The first is defective in several particulars. The public school is too public. Except in a few instances, thorough preparation for college, in the classics, is not provided in public schools. In them, all classes are thrown together, the vicious and immoral with the well-bred and virtuous, and vice is much more contagious than virtue. The result is, not that the bad are made better, but that the good are brought to the level of the bad. Education under private tutors is defective in that it leaves out a most essential part of training,—the contact with other students which Emerson says is what educates our boys, and the consequent growth of self-reliance.

The second plan does violence to nature, in taking a boy away from home influences, from mother and sisters and furnishing no substitute. The influence of the gentler sex upon a boy from the age of twelve to eighteen is of the utmost importance. Without it, rudeness, vulgarity and immorality, with other bad habits, are likely to result. Some of the teachers in a secondary school for boys should be ladies. These conditions cannot be met in a school exclusively for boys. The teachers are usually all gentlemen who govern by word of command instead of by appeals to the inner sense; the boys, deprived of the refining influences of the opposite sex, become unmannerly and boisterous savages. Government in such schools, is very difficult and in many instances is not attempted.

The third plan is too manifestly undesirable to require discussion. The freedom from restraint is too great except in the limited cases where the boys board with the masters.

The fourth and last plan seems to us the one most strongly endorsed by nature and experience. A school should, as nearly as possible, furnish the conditions of home life and school life combined. No element in the nature of a growing boy should be neglected during that plastic period when he is getting his secondary training. The stern influences of men and the gentler qualities of women should together beat upon the young life and mould its character. The boarding school, for both sexes furnishes the conditions of the broadest and fullest development. There, brothers and sisters can be educated together and be a mutual help and protection. In such a school the problem of government is much simplified. If due precaution is taken in receiving pupils,—and it should be remembered that an ordinary school is not a reform school,—no serious difficulty is found in regulating the social life of such a school.

Why has this plan not been more generally adopted? First because of the old and not yet extinct notion of the inferiority of women. Teachers are largely to blame in the matter. A "boys school" is thought to have a little more "tone" to it than a "school for both sexes." Some schools that admit girls do not put their names in their catalogues, and Harvard only lets them come in at the back door. All the great English secondary schools are for boys only and our eastern academies are patterned after them. Secondly, there is a fear, without foundation, that somehow the girls,—and the boys as well,—will in some way be contaminated by being brought together in the same boarding school. Neither common sense nor experience confirms this suspicion. The sexes were designed to live together in society and should grow up together. They are allowed to do so every where else except in school. The fact is there is no safer place for a boy than a well conducted school for both sexes. Unless we assume that the whole student body is immoral and bad, we can see that no boy or girl in such a school can commit an impropriety without bringing upon himself the censure of all,—and persistence in evil doing leads to social ostracism. Jean Paul in the *Levana* says "To insure modesty I would advise educating the sexes together. But I will guarantee nothing in a school where girls are alone, and still less where boys are."

Without attempting to treat the subject exhaustively, I will say that my experience at Cook Academy has confirmed me in the belief that a boy is under the most favorable educational conditions in a school like this where both sexes are received and are under the guidance of teachers who mingle with them constantly and endeavor to maintain home-like influences and relations. Here the culture of every part of a boy's nature is in constant process, and certainly no school is more easily governed. There are dangers to be avoided, but not so many or so serious as in schools where other plans are followed. I believe that eventually this system of co-education will be generally adopted but until then "cane-rushing" and "hazing" and mid-night carousals will remain the favorite pastimes of boys isolated from the refining influences that nature intended to have around them at all periods of their development; and government will remain difficult or impossible.

C. F. P. BANCROFT, PRINCIPAL PHILLIPS ACADEMY, ANDOVER, MASS.

No one school is best for all boys, nor is any one method of organization and administration best for all schools. The tendency at present is two-fold—on the one hand towards a very close and very immediate supervision under which it is impossible for a boy to go wrong, and on the other hand towards a larger liberty than has ever before been tried with young boys, so that they may very early learn to govern themselves under the influence and example of their high-minded fellows, and the unofficial but pervasive and controlling personality of able and manly teachers.

About a third of our boys live in cottages, under a supervision somewhat more direct than is known to any of our colleges in connection with their dormitory system. The plan was adopted in 1830 and is a distinct anticipation of the favorite "cottage system" of to-day. The original purpose was to make it possible for boys to come to this school even if their resources were exceedingly small, and "commons" are still reserved as a part of the beneficiary appliances of the schools, the rich men's sons would in many cases avail themselves of them if it were allowed. They have proved to be as valuable, from an educational point of view, as from the economical. If I had funds in hand, I should enlarge the present accommodations of this kind, with such modifications as modern building suggests. The plan itself is almost perfect for us.

Two-thirds of our boys are in private families, under our control. This plan was exclusively employed for the first fifty years of the Academy. This was the favorite plan of the founders. Judge Phillips had boys in his own family for almost twenty-five years. The two methods combine very well here, and the long traditions of more than a century make the working of them easier than would be possible in a new venture. One objection to the private household plan is the increased expense. The school has no profits from rents or table, items which have been the main endowment of many institutions. Small families are necessarily more expensive than larger ones.

I am not in a position to discuss the question in the large way you desire. The Andover plan has been successful here and in a few other of our most famous New England schools. We found the plan working well, acceptable to the patronage of the school in a great majority of cases, and have thus far found no occasion essentially to modify it. In inaugurating new work I think we should feel it our duty to study the other methods and not trust too blindly or fondly to our own.

THE ACADEMY SCIENCE PRIZE.

DECISION OF THE JUDGES.

DIRECTOR'S ROOM,
SIBLEY COLLEGE, CORNELL UNIVERSITY, }
ITHACA, N. Y., April 30, 1888.

Dr. George A. Bacon, Editor of THE ACADEMY,

Syracuse, N. Y.:

DEAR SIR:—The committee to which was confided the duty of examining the papers submitted in competition for the \$50 prize of THE ACADEMY have concluded the task and report the order of merit, as adjudged by them, as per the enclosed memorandum.

The best of these contributions, excellent as it is, is considered to be very nearly equalled by several of those competing with it, and this difference is so slight as to make it a question whether another committee, studying the papers from another standpoint, might not

properly place them in different order. The committee appointed, however, submit their decision as representing their own best judgement, and would suggest that two or three, at least, of the other articles be also published as valuable and instructive additions to the literature of this most important subject.

Very respectfully yours,

R. H. THURSTON, Chairman.

The judgement of Dr. R. H. Thurston, Director of Sibley College, Cornell University; Dr. E. L. Nichols, Professor of Physics, Cornell University; Dr. S. B. Newberry, Professor of Applied Chemistry, Cornell University, gives the following order of the papers presented in competition for the prize offered by THE ACADEMY for the best practical essay on *Science Teaching in Secondary Schools* :—

No.	Writer's Nom de plume.	Writer's Real Name.
1.	Felix Bourne,	Charles R. Dryer, M. D., Fort Wayne, Ind.
2.	Anthropos,	Harlan H. Ballard, Pittsfield, Mass.
3.	S. O. Crates,	Gilbert B. Morrison, Kansas City, Mo.
4.	Lyok,	C. Herschel Koyl, Swarthmore College, Pa.
5.	Dalton,	G. V. Vonce, Lutherville Seminary, Md.
6.	Atom,	A. D. Morrill, Athens, Ohio.
7.	278,	George E. Zartman, Waterloo, N. Y.
8.	Ronhi,	Richard Owen, New Harmony, Ind.
9.	999,	
10.	Priestley,	George G. Groff, M. D., Lewisburg, Pa.
11.	P. D. Q.,	H. W. Thurston, Hyde Park, Ill.

The editor of THE ACADEMY wishes to express his gratification at the result of the competition. Twenty-six papers were submitted, and with few exceptions they were such as to reflect credit upon the writers and the schools. The number of essays offered was a surprise. We had expected perhaps half a dozen answers, and had no thought of so keen and generous competition as the result has shown. The geographical distribution of the writers is interesting. Of the unmentioned essays we are in duty bound to say nothing. Of the eleven mentioned with honor only one comes from New England and the Atlantic sea board States, and not one is from the great seats of learning, not one from the older universities or colleges or from the famous fitting schools. Perhaps it is presumptuous to draw inferences from this fact, but it seems to denote that the teaching of science is still little insisted upon in the older schools and communities, and occupied only a small share of attention.

The two papers standing highest on the list are published in THE ACADEMY this month. Others will appear subsequently, and all those published will afterwards be issued in a separate book or pamphlet. THE ACADEMY wishes to return thanks to the writers, to the committee who kindly lent their assistance, and to the many periodicals which so freely advertised the competition. The real names of the writers remained in the sealed envelopes until April 25, and were unknown not only to the committee, but, until that time, even to the editor of THE ACADEMY.

NOTES.

THE ACADEMY is mailed promptly on the first of the month. Subscribers should inform us if it is not received within two days of the time when it ordinarily reaches them.

The recent discussion in the correspondence columns of *The Nation* in regard to the vexed question of entrance examinations for admission to college has brought to light no new facts and no new arguments. It has, however, disclosed an astonishing degree of ignorance of educational matters on the part of several writers entering into the discussion. We know of no more pertinent illustration of the necessity of establishing in all our colleges and universities chairs of pedagogy for the study of the principles and history of educational science. No question affecting our educational status can be settled as long as educators themselves do not know what has already been done towards the settlement of these questions or the reasons that have led to the adoption of certain lines of policy.

We enter a protest against the fallacious argument used by one of the correspondents to the effect that it is not the function of college officers to travel about the country passing judgment upon preparatory schools. Some of the most serious defects of our educational system come from the fact that college officers do not "travel about." College professors who have never taught in the secondary schools often fail to understand the needs of such schools. Those among them who were prepared by private instructors often settle the great questions of the public school system by the data furnished by their own experience, while preparation in the high

school may lead to a misapprehension of the place of the private school. It *is* the function of college officers to familiarize themselves through personal visitation with the work of the secondary schools. On the other hand, the schools are equally in need of such visitation, for they often of necessity have the most erroneous ideas of what a colleges gives and requires. In this State, statistics drawn from the last Regents' Report show that of the principals of the high schools and academies of the State, only seventy-one per cent have received any part of their education in a college, while only fifty-four per cent have received college degrees and several of these are evidently purely honorary. When college and school officers through personal contact come to a better understanding in regard to their mutual relations, we shall have less mental philosophy and more English in the secondary schools, and more mental philosophy and less elementary English in the college and university.

One of the two reasons given by a writer from Wellesley College for the original adoption of the certificate system is "To raise the standard of scholarship in secondary schools, confessedly the weakest point in our entire educational system."

Confession is indeed good for the soul. Happy are they who can obtain this blessing for themselves by confessing the short-comings of their fellows. Confession is also a great relief, and this writer has doubtless found it so. We have also long been uneasy in our mind by reason of a feeling regarding the faults of others, and it will be a great relief to us to be able now publicly to "acknowledge and confess" a few of them. Heretofore we have hesitated about this kind of confession from a notion that confession should be limited to our own short-comings, but now that secondary teachers have so high an example set before them, we feel that we should be wanting in our duty to our fellow teachers if we hesitated longer. "A fault confessed is half redressed."

And first we will say that the colleges and the universities are doing and have done much to injure the cause of education. There are even those who would say that they are "confessedly the weakest point of our educational system." They criticise without hesitation on the schools below them, but it is not very hard to show that the secondary schools are working in the face of almost insurmountable obstacles which the colleges thrust in front of them. Some time ago we made a comparison of the catalogues of a considerable number of colleges and universities. The high school of which we are prin-

cipal has a course of only three years. The work of the lower schools is so arranged that a fairly bright pupil entering at the usual age, can complete the entire course of the city schools and graduate from the high school at sixteen. Exceptionally bright pupils may graduate even younger. This surely is not an extravagant length of time to devote to work preparatory to entering college. We know of no college or university which publicly recommends its pupils to apply for entrance before their sixteenth birthday. But looking over the catalogues mentioned above we recognize in the lists of students one hundred and four names of those who were formerly pupils in our high school, and of this number only forty-three were allowed to complete the meagre course our school offers. In other words, nearly 59 per cent of the Syracuse High school pupils now in college were accepted by the various college authorities before completing the course in the secondary school. The higher institutions of learning stretch down a tender welcoming hand even into the lower grades of our courses and kindly remove those who are working in confessedly the weakest part of our educational system. It is hard to see how this strengthens the weakest part.

Under the certificate system—we do not say because of the certificate system—this state of things grows worse year by year. During the ten years since we took charge of this school, we have known of no pupil from the school who has failed in an entrance examination at any college, even when he went without the recommendation of his teacher. We confess that herein lies the greatest annoyance connected with the whole matter. It is no answer to say that many of these pupils were received by the colleges on the certificate of the teacher. We may refuse a certificate to an unprepared pupil, but we cannot prevent his going to college, trying the examinations and being admitted; and his friends will then say that the certificate was refused without cause. Still further, the college professors, after having accepted a student on examination and without recommendation from his teachers, have been known actually to blame the secondary schools with sending out poorly prepared pupils.

It is easy for the universities and colleges to make charges against the lower schools. Probably none are so keenly conscious of the weakness and short-comings of the preparatory schools as those teachers who spend their lives in these same schools. We do not think we need to be told our faults so much as we need to be helped to correct them. When we remember that we have not had in ten

years a pupil rejected at a college entrance examination, we do not flatter ourselves that all those pupils have been well prepared for their subsequent work. We know many of them were not well prepared. But if the colleges are eager to take unprepared candidates, it is hard for the secondary teacher to hold his pupils long enough to give them a good preparation. Certain conscientious and faithful ones can be brought to see for themselves the disadvantages of poor preparation; certain earnest souls always desire to do faithfully and well everything they undertake; but the idle, the careless, those who want to go to college mainly for the name of so doing, choose the easiest and readiest way of getting there. We do not believe it is for the interest of the college to accept students with such purposes and such preparation. We believe a college is stronger and better for rejecting such. But it cannot be denied that some colleges are eager to swell the ranks of their students, no matter how. A short-sighted view makes them think in this way they are contributing to their own success. The same short-sightedness makes them swell the numbers in their catalogue by publishing the names of scholars not actually in attendance.

As shedding still more light on the confessed weakness of secondary education, we might call attention to the popularity of the secondary schools as compared with that of the higher institutions of learning. In an address before the Massachusetts Teachers' Association in November, 1886, President Freeman, of Wellesley college, lamented the fact that the attendance at the colleges during the past twenty-five years had hardly kept pace with the growth of the population. During the same period the increase in attendance at the secondary schools was more than twice as great as the increase in population, showing that the "confession" of the colleges as to the weakness of secondary education has not so far extended to the general public. This growth of the secondary schools and the failure of the colleges to keep pace with this growth has occurred in the face of the constant and increased bidding on the part of the colleges for the students in the secondary schools.

Under existing conditions and with the present spirit of competition for students among the colleges there is no possibility of an adequate and satisfactory solution of the difficulties in the relations of secondary and higher education. Some colleges hold on the even tenor of their way relegating to the secondary schools certain work and refusing admission to college till that work is done.

Other colleges are willing to undertake any work if only thereby they can obtain pupils. With the first-mentioned class of colleges the secondary schools feel that they have a definite, although they may consider it an inadequate, protection. From the others they have a right to expect nothing. If these latter institutions saw fit to advertise themselves definitely as secondary schools and openly compete for the patronage there would be nothing to say. As it is they arrogate for themselves the title of higher institutions, and then, as if from a vantage ground, they undertake criticism of schools for whose work they are all the time anxiously bidding.

In *Science* for April 13, Mr. Charles E. Sprague writes what he evidently considers a very telling letter on the ease with which Volapuk is mastered. He says "the learners are unaware of the difficulty. * * * The American business man, snatching an hour or two in the evenings, somehow or other manages to surmount the obstacle which the professors declare insurmountable, and after a week writes grammatical Volapuk." This is very inconclusive evidence as to the value or importance of the new language. It may be set down as a trite truth, that no attainment of very great value comes to us in this world without serious effort. The tom-tom is usually considered an easier instrument to learn than the violin, yet somehow the latter is preferred both by musicians and by the public. In the lack of anything better the tom-tom might serve to mark the time for a squad of recruits, but for purposes of enjoyment, entertainment and recreation an instrument more difficult and with higher possibilities must be employed. So at a pinch Volapuk may answer for the bare necessities of communication when little is needed. But to interpret manifold and complex thought, to convey subtle shades of meaning, to set forth the play of emotion, sentiment and fancy, requires something more highly organized and more delicately adjusted.

Mr. Sprague reads "a good deal about English being or becoming the 'universal language,' but what he reads to that purport is never written by Frenchmen or Germans or Italians." That is Mr. Sprague's misfortune; but he should not close his eyes to the fact that English is every year becoming more nearly a universal language. In business communications its prominence to-day is unrivaled. Its literature gives it a well-deserved eminence. Whenever it gains a foothold it supplants its rivals. Educated men of all nations read

it. The very fact that we smile so readily at the mistakes of those who use it clumsily, is testimony to its worth. No one detects discord in the music of the tom-tom, and no one laughs at the infelicities of Volapuk. Both it and the tom-tom are easily learned.

BOOKS RECEIVED.

Victorian Poets. Revised, and extended by a supplementary chapter, to the fiftieth year of the period under review. By Edmund Clarence Stedman, author of "Poets of America." Boston and New York: Houghton, Mifflin & Co. The Riverside Press, Cambridge. 1888.

"So long as the true critic's faith, hope and charity abide (and the greatest of these is charity) he will justify every well-timed masterly effort to recall the triune spirit of Britain's highest and most enduring song." p. 414.

After reading Mr. Stedman's added chapters in this edition we feel that this "charity" has somewhat affected the peculiar quality of his criticism. What he says of Browning (p. 429) looked at in the light of the preface, reads almost like an apology for what seems to us the better-balanced criticism of earlier years. But his opinions of Browning's "plenteous aftermath" one cannot afford to lose.

In speaking of Tennyson's dramatic efforts he well says "It must be admitted that years of self-abstraction, of intimacy with books and nature, are not likely to develop the gift of even a born novelist or dramatic poet. Human life is his proper study; his task the expression of its struggle, passion, mirth and sorrow, virtue and crime, —and these must be transcribed by one that has been whirled in their eddies or who observes them very closely from the shore."

After reviewing the latter works of these "two brave galleys, who still head the fleet," Mr. Stedman comes to Swinburne and finds that "not a few consider *Tristram of Lyonesse* (1882) to be his most attractive and ideal narrative poems." "Of Swinburne's recent dramas *Mary Stuart* completes the most imposing trilogy in modern literature, and is, while less romantic than *Chastelard*, and less eloquent than *Bothwell*, a fit successor of the two. * * * * The authors consistent idea of *Mary Stuart* is formed by intuition and critical study, and is reasonably set forth in his prose essay. The future will accept his conception as justly interpreting the secret of her career."

Rosetti, "the most unworldly and nervously exalted of modern poets," died in 1882. He lived to complete the *House of Life*, "that wondrous rosary of impassioned sonnets of life, love and death—so distinct from Mrs. Browning's, yet henceforth to be named with hers, as no less inspired and memorable."

The tribute which Mr. Stedman pays to Matthew Arnold is doubly interesting now that the seal of death has been placed upon the latter's work. "That Arnold was the representative in his poetry, as he has been the leader in his prose, of the questioning progress of the day—a day whose perturbation of itself declares a forward-looking spirit—is now more plain to me. Like Emerson in America, he was a teacher and stimulator of many now conspicuous in fields of mental activity."

One is impressed in the revised, as in the former edition, with the author's wide reading. Among the crowd of "English Minnesingers," as he styles them, we notice John Addington Symonds, "fairly typical of the best results of the English University training;" Edwin Arnold, "who has zest, learning, industry and an instinct for color and picturesqueness strengthened through absorption of the oriental poetry;" Lewis Morris, who is laid low by a few keen thrusts; Arthur Joseph Munby, of whose *Dorothy* he says "that it was a novel pleasure to light upon a complete and wholesome poem faithfully and winningly going at its purpose, that of depicting pastoral English scenes and extolling health and strength as elements of beauty in woman;" and James Thompson, the English Poe, whose life and writings will be subjects of recurring interest during years to come. "Not only in his command of measures, his weird imaginings, intellectual power and gloom, but with respect to errant yet earnest temper, his isolation, and divergence from the ways of society as now constituted,—and very strangely also in the successive chances of his life so poor and proud, in his final decline through unfortunate habits and infirmities, even to the sad coincidence of his death in a hospital,—do the man, his genius, and career afford an almost startling parallel to what we know of our poet of "The grotesque and arabesque."

Popular Physics. By J. Dorman Steele, Ph. D., F. G. S. Author of *Fourteen-weeks Series in Natural Science*. A. S. Barnes and Company. New York and Chicago.

To distinguish it from the former book by the same author, the name of this edition is changed from *Fourteen Weeks in Physics* to

Popular Physics. The former work contained, including questions, two hundred and seventy-two pages. This has been enlarged to three hundred and eighty, though the difference in matter is not so great as would appear, since the present edition is in larger type, and the page is leaded, thus giving it a pleasanter look to the eye. Although completely revised, the same order and division has been retained, except that Magnetism is now discussed in a separate chapter. The order of arrangement in the chapters also remains much the same as in the former edition, though considerable new material has been introduced, and some slight changes made in the old. This appears least in the earlier chapters on Motion and Force, Attraction, Elements of Machines, Pressure of Liquids and Gases, Light and Heat. There is considerable change in the chapter on Sound and in that in Electricity. Taking it all in all the book is much improved in appearance, and doubtless in its availability in the classroom.

Common School Law. A Digest of the Provisions of Common and Statute Law as to The Relations of the teacher to the Pupil, the Parent, and the District. With five hundred references to legal decisions in twenty-eight different states. Fourteenth edition, entirely re-written, with references to the New York Code of Public Instruction, edition of 1888. By C. W. Bardeen, Publisher, 1888.

Not a day passes in which some teacher is not involved in needless and annoying embarrassment, sometimes with serious consequences, just because he is ignorant on some simple point of law, which he should have learned before he made application for a situation. Probably there is nothing for which men pay so dearly in time, money and anxiety, as for ignorance of fundamental law, and few things are so needless. The teacher is no exception. Previous to the publication of the first edition of Mr. Bardeen's little manual in 1875, the information there given was not readily accessible, but it was none the less indispensable. The present edition is much enlarged, convenient, makes clear statements, and cites authorities. A single evening will suffice to go through the book, and no teacher should undertake the charge of a school without a knowledge of the facts contained in it.

Our Language. Its Use and Structure. Taught by Practice and Example. Gordon A. Southworth and F. B. Goddard, Ph. D., Leach, Shewell & Sanborn. Boston and New York.

This book is divided in two parts. The first, comprised in 108 pages, is devoted to writing, the second, 282 pages is given up to grammar. The authors do well to place stress on the

writing part and make it precede the formal grammar. It is infinitely more important and more difficult to teach. In fact if we were to make a criticism it would be that *more* space should have been given to this part and *less* to the formal grammar.

The first part of the work is concise and a considerable amount of new material has been given. Much of it will be found to be extremely practical. Some of the exercises suggested are new and introduce excellent features.

Benjamin Franklin as a Man of Letters. By John Bach McMaster, Wharton School, University of Pennsylvania. American Men of Letters Series. Boston: Houghton, Mifflin & Co. New York: 11 East 17th St. The Riverside Press, Cambridge, 1887.

An interesting book, worthy of a place in every school library, but it makes sad havoc with some of the conventional, generally-accepted views of Franklin's character. On the whole his fame rather suffers at the hands of the author, and yet we cannot but feel that the book is fair and the conclusions just.

Teachers' Manuals. Published by E. L. Kellogg & Co., 25 Clinton Place, New York. The series embraces the following:

The Art of Questioning. By Joshua G. Fitch, M. A.

The Art of Securing Attention. By Joshua G. Fitch, M. A.

Practical Work in Schools. By Charlotte M. Yonge.

Improvement in the Art of Teaching. By J. G. Fitch, M. A.

Object Teaching. A Lecture. By J. H. Gladstone, Ph. D., F. R. S.

On Stimulus in School. By Arthur Sidgwick, M. A.

Reception Day. A collection of fresh and original Dialogues, Recitations, Declamations, and Short Pieces for practical use in Private and Public Schools.

A Quiz Book on the Theory and Practice of Teaching. By A. P. Southwick, A. M., Author of "The Elementary Question Book," "The Advanced Question Book," "Dime Series of Question Books," "Quizzism," Etc., etc. Syracuse, N. Y.: C. W. Bardeen, Publisher. 1887.

Grube's Method of Teaching Arithmetic. Explained and illustrated. Also the improvements upon the method made by the followers of Grube in Germany. By Levi Seeley, A. M., Ph.D. (Leipsic) New York and Chicago: E. L. Kellogg & Co. 1888.

Principles and Practice of Morality; or, Ethical Principles Discussed and Applied. By Ezekiel Gilman Robinson, D. D., LL.D., President of Brown University. Boston: Silver, Rogers and Co., Publishers, 50 Bromfield St.

Patterson's Language Series. *Advanced Grammar and Elements of Rhetoric.* By Calvin Patterson, B. S., Superintendent of Public Instruction, Brooklyn, N. Y. New York and Chicago: Sheldon and Company. 1887.

Governor Chamberlain's Administration in South Carolina. A chapter of reconstruction in the Southern States. By Walter Allen. New York and London: G. P. Putnam's Sons. The Knickerbocker Press. 1888.

First Steps in Electricity. Designed for the entertainment and instruction of young people at home and in school. By Charles Barnard. New York: Charles E. Merrill and Co. 1888.

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ENGLISH IN THE HIGH SCHOOL.

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Practically the study of English in our High Schools means two things—first, acquiring a working knowledge of the English language, learning how to read it intelligently, to speak it correctly, and to use it clearly as a written medium of expression; and, second, a great end to which the first is in part a means, a more or less intimate acquaintance with that noble thought and pure feeling embodied in our English literature, perhaps the greatest literature in its completeness that the world knows.

There is to-day abroad in our schools and colleges a vastly increased spirit of interest in this study, its methods and aims, which can be accounted for in part, by a growing willingness to acknowledge the greatness and worth of our own literature, as compared with that of other peoples, by a growing appreciation of our language, its wonderful flexibility and richness, and a more slow and less gracious acknowledgment, but still an increasing one, of the value of the study of the English language as a means of furnishing that mental discipline which is supplied by other linguistic studies.

This last belief, though overwhelmed with opposition, is certainly gaining ground.

This increased interest and attention now given to the study of English, is quickly seen on looking at college requirements in English to-day.

An applicant, to-day, must be able to recognize grammatical inflections; to correct false syntax or offences against idiomatic construction; to write a short composition on a familiar subject which shall show that he possesses a fairly good vocabulary, and can construct sentences properly; but also he is required to have read certain specified works of literature with care, and the subject of the required composition is drawn from these. For these requirements, high schools, in so far as they are preparatory schools, must prepare their students.

Complaints come from many colleges that our schools do not yet reach the required standard. Nevertheless it is evident that a strong effort is being made in the direction of the requirements; experiment prevails, discussion abounds.

There is probably no branch of study in which such a variety of method may be found, or in which there is room for such a variety. Every teacher has his suggestions, every school its scheme, subject to modifications each year.

But preparation for the colleges is not a vital part of our high school work, and entirely apart from such considerations, there are several obvious reasons why English should receive special care and attention.

How to Americanize our large foreign population, is already a problem urging itself on our thought. It is essential that it be done, in order to preserve our distinctive character as a nation, and to fulfill that purpose in the civilization of the world and the uplifting of mankind which we are so proud to believe America was intended to fulfill.

Upon our public schools must rest largely the burden of accomplishing this, and nothing there taught will help so largely and forcibly in this direction as the study of English—making our language, history and literature part of the life of foreign-born children, teaching their hearts to love and respect the adopted country, and counteracting in subtle ways the strong home influence of an opposite nature.

It is a settled opinion in many minds that St. Louis has set Chicago a worthy example in throwing out German from her schools, if on no other ground than that it helps to keep foreign children foreigners.

Again, our schools aim to produce not only American citizens, but intelligent citizens. In every-day life nothing more clearly makes an intelligent man than power to express thought in clear, forcible language, written or spoken, and this can be learned only by language study.

Again, no one denies the great power of linguistic study, to develop and strengthen the mind. To get the highest results from linguistic study it must, of course, be carried on in more than one tongue. Whether the foreign tongue should be Latin or German is a matter of question with some. That it should be either to the exclusion of English no one will maintain, and that the study of English should have equal value, if not more, with that of the foreign tongue, there is reason for asserting. Indeed, we may go further and say that for all but a small percentage of our people linguistic training must be English or nothing, since the study of any foreign language can, for reasons mentioned before, at best only keep a footing in our higher schools.

The claim of English to be studied simply as a means of training has been very strongly put forth by Prof. Woodward, of Wofford College, S. C. He asserts and proves very clearly in a recent monograph, that the English language, in what of inflection remains to it, in the ready solution of its constructions by logical analysis, and in the opportunities it offers for word analysis, presents to us a sufficiently powerful instrument of mental training, besides having the invaluable advantages, first, of ensuring unbroken continuity between the unconscious stages of the child's education and the formal methods of the school; and, second, that it leads to the appreciative study of an available literature, as the study of no other language could in our lower schools.

Passing from the reasons for this study to its value and methods in our high schools, we may first inquire what ought to precede in the preparatory schools.

When the child first comes to his teacher he has acquired already a stock of simple words which present definite ideas to his mind, and the power of discovering relations between these and reasoning thereon is just appearing.

The care of the teacher must be to develop this power and carry on this work without wrench or jar. The child's definite use of words must be daily increased, and his power of thought daily exercised by the construction of simple sentences. This work ought

also to be accompanied by logical analysis. To analyze a sentence is far more in accordance with the working of the mind than parsing words, and along this line lies the true power of language to develop the mind. This work of analysis and of construction ought not to be separated, nor the one sacrificed to or deferred to the other. They together form the royal road to that power of clear expression without which knowledge is so helpless, and to that keen and clear understanding without which no form of words has life.

This course, after some preparatory drill in forms, allows the teacher to make use of the daily reading lesson as the basis of language study, and this lesson, even in young classes, may be some model of English thought and style, thus accustoming the child to the best forms from the start.

If the work in construction is definitely pursued with it, it is possible for the child to feel from the start that sentence-forms belong to, and *are* the thought; that words are spirit and life, and the path of language work, so often dark and thorny, will be bright from the start. When the child reaches the high school, he ought in this way to have become perfectly familiar with sentence construction, in all its ordinary parts, and also have some definite knowledge of the formation of words.

If this two-fold course is the logical one, it must still be pursued in the high school.

It would be impossible to rate too highly the value to the student of that four years of training through whose entire length runs the intelligent, careful, analytic study of the fine and noble in English Literature. He is now at an age when he gains from it something far more precious than the mere exercise of the mind by analysis—namely, the feeding of the mind with food convenient for it, rich, varied, life-giving, sweet to the taste, and this third element enters into the work. Certainly to-day it is of greatest importance, since our boys and girls will read and have leisure to read, and when that which is bad is so enticing, so wide-spread and so deceptive, that they should be brought and held in close and loving contact with that which is good; that a taste, rather a thirst for the pure should be developed, and that doors should be opened in many directions to the inquiring mind. The business of the school is to develop the heart of a child as well as his head, and nothing can so develop the moral, emotional, imaginative man, as the study of literature.

What work can be greater than to quicken a mind and inspire a heart? We all desire to do it; how shall it be done?

That day has probably passed forever when the lives of authors, and lists of their works were studied to the exclusion of their writings, and when criticisms were learned by heart. And we are all agreed that the way to know Shakespeare is to read Shakespeare, and not what the world has said about him.

Prof. Hudson, a most successful and experienced teacher of English, maintains that an exercise in literature should distinctly have nothing about it of the nature of a recitation. It should be nothing but a close and intimate communion between teacher, pupil and author, accompanied only by sufficient comment and question to serve to make the text intelligible to all. "In the quiet composure of such an hour," he says, "a heart that watches and receives will gather more than a head perpetually on the jump." This kind of reading is most truly a sowing of seed, but he warns that the teacher shall have need of patience, for though it bring forth fruit a hundred fold, it is not quickly, but in due season.

The boy or girl need not be conscious of the seed growing. He does not need to know that he grows wiser every day, or to see "each little drop of wisdom as it falls into the dimpling cistern of his heart," for education is unconscious in proportion to its depth and life-giving power. According to this plan the teacher must resolve himself into a living sympathy, and quietly touch the hearts and minds of his students with a live coal from his own.

Perhaps we *are* too impatient and do not give value enough to the silent power of great thoughts and real beauty—possibly in our eagerness to see the blade we forget that it springs so readily to view, when there is no depth of earth, but to carry on the figure, the soil of many a young mind and heart needs breaking up, probing, and the seeds do sometimes need to be worked in that they may take root and grow, for it is quite possible for truth and beauty to slide off from a heart like water, leaving only a momentary sparkle behind. How can this be done except by questions, close and skillful, prepared beforehand by the wise teacher? When the pupil has been brought to express in his own words what he has read, when he can stand before questions upon it, when he can express his own views upon the same topic, then may we have some assurance that the seed will strike root.

But on the other hand there certainly is some danger of probing too much. When a class which is reading Addison sits before you, isn't it enough that each face bear an amused delighted expression, without obliging each to tell just what amuses him and how it does it?

Let us remember that we are not training critics, that not one in twenty is capable of becoming a critic and that he will do it in spite of us.

When a girl confides in you that she always just hated poetry before, and a boy bashfully but of his own accord inquires if you do not think that any good or beautiful thought is all the more beautiful and stronger for good, for being written in poetry, can you not stand one side and let the heaven work with a joyful heart?

But beyond and above the intellectual development and elevating of the taste, lies the gracious and slow-coming result from this work of growth of character and purity of heart. Let us watch most earnestly for signs of this result and believe most faithfully in its possibilities.

I have in mind the remark of a revered and beloved college professor—a man of great knowledge which has ripened with years of experience into wisdom and in whom the Christian life has flowered in its perfection. Every year he reads with the Senior class for one term, the *Phaedo* of Plato in the Greek, and he said in speaking of the power of noble thoughts: It is a very rare exception when a young man finishes that term's reading the same young man that he was when he began it. If such power lies in the thought of the philosopher reaching after God, expressed in a foreign tongue, how transforming may be that power of the literature of our mother tongue embodying God. But he added, to be practical be slow. Read a few—the best—great things and dwell lovingly and long upon them.

There is certainly room for question and grave question, whether the class in literature should be made the place and the means for doing all the work in English, or not, and upon this point I very much hope that discussion will freely bring out your opinions. It certainly ought to be the basis for it, but I believe that a large part of rhetorical work, while it may be illustrated in the literature class, ought to be practiced aside from that class.

Two things are certainly true, that the attempt to do drill work in connection with reading interferes with the continuity of the latter, and to a greater or less extent results in loss of interest, and second, that there is often and almost of necessity a want of definiteness on the part of the teacher which results in incomplete work.

And yet I know that there is no work so dreaded by pupil and teacher alike as work in English composition. The reason is largely,

that it is too often felt by both to be not a part of the school work, but an additional burden to be carried as best it may be. The truth is, no part of our school work needs to be done with more care, and none requires more of the teacher's time.

Vast is the ingenuity needed in the selection of subjects, and abundantly large is the room here for mistakes. If you wish to know what to avoid, look in the back of Quackenbos's Rhetoric. One simple rule may be laid down. Choose for each pupil individually, and choose a subject about which he knows something and is interested to learn more. Again the pupil must be taught how to choose a point of view from which to regard his subject—how to select material, how to arrange it, how to make the best use of it, in short, how to think out his subject and make a working outline for it. Here what ready sympathy, what adaptability, what tact are necessary, that praise may not unduly puff up, or blame needlessly depress the earnest pupil. Here the teacher meets his student individually, as nowhere else, for the boy is endeavoring to express himself—he feels himself alone, and trembles accordingly.

And then what patience, infinite and serene, is needed in reading the finished work, correcting judiciously, discriminating wisely, always allowing the pupil's right to express his own opinion, but controlling and directing, so that this opinion may be justly founded. It is no wonder that a teacher shrinks from all that this implies, but if only time is given for it, it need not be irksome on either side, and there certainly lies in it a rich reward.

We all believe that in teaching English we are moving to-day in the right direction. The inductive method is just as much more fruitful than the deductive, when applied here, as it is everywhere else. But isn't there danger that in our zeal and eagerness to travel in this new and goodly path, we may move too hastily? Isn't the pendulum swinging too far the other way? Much reading makes, it is true, a full man, but writing maketh an exact man and speaking a ready man, adds Bacon the Wise, and wherein lies the usefulness of fullness without readiness and exactness?

Read by all means, thoughtfully, carefully; rouse the intellect, touch the heart, quicken the life, enoble the purpose, raise the ideals, let beauty in through the soul's windows, but neglect not to give this quickened power a tongue. "*Lingua animi interprete*," says the Latin poet. Give the tongue the practice which shall enable it to interpret the soul, not only grammatically, but connectedly and simply, and more, give it control of that power which lies in words,

hidden often till placed in the right position, when they may blaze like jewels or cut like knives, strike terror to the heart, or bring tears to the eyes. Do not strengthen the muscles and teach the arm skilful movements, and then leave in the hand a weapon blunt and pointless.

Who that has read letters written by high school graduates, often girls who may have read Emerson and Greek plays in school, but would be deeply grateful for any training which should make letter writing what it ought to be, a fine and womanly accomplishment, as well as a daily comfort in home life.

Now entirely for the sake of provoking criticism, let me suggest a working plan for teaching English.

Let English run through the entire four years, if necessary sacrificing to it another language.

Let the course in reading begin with some modern poem or prose work, and run back chronologically, reaching Chaucer in the Senior year; let the last half of Senior year be devoted to a review, systematic grouping into periods.

Parallel with this, and interwoven with it, have a course, which shall consist for the first year in composition work. A great variety of drill can be given here, outlining, paraphrasing, expanding of sentences into paragraphs, of paragraphs into compositions, ten-minute-written work on subjects assigned before-hand, put on the board, and criticised by the class; punctuation, capitalization, etc. There are books on composition which may be followed to advantage.

Let this course the second year cover the subject of Rhetoric; illustrating by what is read, applying by composition work, based on themes drawn from what is read, the author, the times, the incidents, the characters, etc. During these two years make this work of equal value with the reading, but the third and fourth years composition work can be made subordinate to the reading, perhaps incorporated with it, unless for pupils who are taking a distinctively English course.

In these last two years this work can sometimes be done successfully by two rival literary societies. This affords fine opportunity for debates, and practice in ready speaking, but all should be controlled by a teacher, and considered and actually made part of the regular work for all.

The essay work of these two years should be more independent than before, and from three to five may be written each year and carefully criticised.

Much of the ease with which this work is done depends upon the access which the pupils have to books.

If the school has a good library and reading room, or there is one open to it, the advantage is immense. There is no more powerful means of culture than an acquaintance with books, and contact with them, knowledge of them, and love for them, may easily do more for students than all other school influences put together.

I have not yet spoken of that drill in English which should find its place in every department. Inaccuracies of expression should be corrected at every turn, unfinished sentences not allowed, examination papers marked for incorrect English, topical work used largely, giving a chance for free oral expression.

Nor have I yet touched upon one method of teaching English which must have occurred to you all, namely, through the teacher's own personal embodiment of all that is correct and choice in language.

We are so accustomed to being reminded of the model of virtue in all respects which the teacher ought to present to his students, that however much each may be conscious in his own heart of what he ought to do and be, it may not be necessary to say it to each other.

In considering any educational topic, the mind of necessity goes back, as if for a starting point, to at least a brief consideration of what education is. And this is a fortunate thing, for occupied as the mind of the practical teacher is with ways and means, the image of what he seeks to do cannot be too often or too clearly presented to his mind. It should be the star that guides his course; but there is danger that, like Christian with his muck-rake, his eyes become so fixed upon the ground, so held with small details, that he shall never raise them that the light of that bright star may strike into his soul and kindle there a fire to be infused into all his work. All philosophers recognize the divine in man, the god-like essence. It is the destiny and life-work of man to bring out that essence, says Froebel, and the doing of this, and the ways and means thereto, is education.

Let us be thankful that education, in this broad sense, is not in the hands of man, but those of his Creator. All forces of nature, of surroundings, of character, of events, combine in this great work. Man's school is but one element in this great system. You may plant and I may water, but God alone giveth the increase.

*SCIENCE IN SECONDARY SCHOOLS.**

BY GILBERT B. MORRISON, KANSAS CITY HIGH SCHOOL.

The primary object of teaching Natural Science is to educate the pupil. The secondary object is to instruct him. If the former process is accomplished directly, the latter will be attained incidentally. To educate a pupil is to make him willing and able to help himself. Help himself to what? To anything which comes within the limits of legitimate ambition. The responsibilities of life cannot be met by a quantum of knowledge—by a course of instruction, but by the possession of will and power.

If it be said that a pupil of the secondary school, so educated, might not be able to pass the entrance examination to college, let it be answered that this would depend upon the college. It may be assumed that a boy whose normal mental and physical activities had been properly exercised through a High School course, without reference to stereotyped requirements, would be better without the assistance of the college which would refuse him admission, than with it.

Correct science teaching is such that if a pupil attends school but a single day, he will have been profited by the exercises, such that he will have been educated to an extent commensurate with the time spent there. If he has been inspired with a desire to know, and with a belief in his own ability to find out, and to do, the teaching has been in the right direction, although he may not have carried away a single fact that would pass current at a show examination.

Life is plexus of natural phenomena. That part of life which is commercial or mechanical has to deal with these phenomena directly. That part which is intellectual or professional has to deal with them indirectly. For what is intellectual life but a process of interpreting phenomena and its relations? The test, then, of scientific scholarship is the ability to investigate and interpret natural phenomena. The same holds true in different degrees from the beginning of con-

* This paper was submitted in the competition for THE ACADEMY prize last March, and received honorable mention from the judges together with the suggestion that it be published.

scious experience to its close, whether the individual be a child in the nursery or primary school, a youth in the High School, a young man in college, or whether it be adult maturity battling with the plans and combinations incident to a busy and active business or professional life.

It is often repeated that the object of science teaching should be to exercise the senses and to inculcate habits and power of observation. This is indeed true, but it should not be forgotten that the power of observation is not sought as an end in itself, but as a necessary and indispensable means of studying Nature. Acute senses are no test of scientific ability. For if so, many of the lower animals would be more scientific than man. It is the ability to direct the senses, to attend to their impressions and to interpret these impressions correctly, that constitutes the scientific method. The power of attending is the prime essential in all education. The pupil will attend to what interests him. In order then to secure the attention, the interest of the pupil must in some way be aroused.

Attention attained through a healthy desire to know should not be mistaken for that curious attention sometimes attained by the cheap pedagogical joker to get the "good will" of his pupils, and who to keep this "good will" must keep up the jokes, which although entertaining, may be without educational point and ruinous to correct mental habit.

After sensations have been attentively observed they must then be interpreted, and the relation of cause to effect definitely pointed out. The psychological conditions necessary in science teaching may, then, be briefly summarized as follows: 1. Healthy, inquisitive interest in the thing to be pursued. 2. The direction of the organs of sense to that thing. 3. Fixing the attention on these sensations. 4. The interpretation of these observations as to cause and effect.

While the process and method are essentially the same through the different periods of life, the means are different and have to be suited to the particular period of life which we are considering.

The question now is what can science teaching in High Schools and Academies do in the direction above pointed out for the youth between fourteen and eighteen years of age? This will depend first and mainly upon the spirit of the teacher. This is of such vital importance that it should be regarded as the leading condition throughout the entire consideration of the subject. The teacher to accomplish the desired end must be what it is desired that the pupils be.

He must have a true heart, a clear head and a determined purpose. He must be in love with his business and possess a firm belief in the true scientific method. He must be brave in meeting with an unruffled front the ignorant opposition which always prevails against scientific methods. He must be a tireless worker, and a standing example of vigorous growth. A teacher wanting in any of these qualifications will not succeed as a teacher of science. Fine laboratories and costly apparatus will not compensate for the lack of the right qualities in the teacher.

Another essential, though of less importance, is the adoption of a good text-book. Pupils in the High School, whatever other work may be required of them, must study books, and it is essential that these books be what they should be as to matter and method. Young people are disposed to revere whatever they find in print, and the method of the text-book should not be far different from that of the teacher. This is not to advocate text-book teaching. The teacher should of course aim to teach the subject, but he should not be hampered by the text-book work which the pupils are expected to do, but should be aided by it. Books, too, have a kind of spirit, i. e., providing their authors have any, and too much care cannot be exercised in their selection.

The scope of this article will not permit entrance into detail of the specific methods of teaching all the natural sciences. While the same general methods and spirit may be said to be alike applicable to all of them, it is to the experimental sciences, physics and chemistry, that the chief attention should be given, not alone because the avenues which these studies open reach out into almost every walk of practical life, but because they have values purely educative, alike valuable to all pupils whatever may be their future occupation or specialty. These studies are almost necessary complements to each other, and should, as far as possible, be pursued together. Nearly all of chemistry involves the principles of physics, and much of physics involves the laws of chemistry.

The readers of this article will, the writer believes, feel more satisfaction in learning what is actually being done, though imperfectly, than in reading generalities which may never have been materialized. What follows, therefore, is a brief descriptive account of an actual school.

One hundred and thirty pupils are studying physics, and recite in three divisions, each division having forty minutes for recitation.

After securing the adoption of Gage's *Elements of Physics*, and having used it in the school one year, a daily and yearly syllabus of study and recitation was made out on a chart and hung up in the laboratory. This chart shows at a glance the topics to be presented, the apparatus needed for their illustration, and a concise statement of the principles involved, the number of the lesson and the page in the text-book where each lesson begins. The syllabus is for the use of both teacher and pupil; its use to the teacher is in making it unnecessary ever to open the text-book and to avoid dwelling too long on any one subject to the detriment of other topics equally important, as will usually, at best, be the case. The school has but one set of illustrative apparatus making it necessary for one pupil or set of pupils to work at once while the others observe, ask questions, and take notes. Pupils doing experimental work are assigned several days in advance, and by the use of the syllabus find out the apparatus necessary. They are, therefore, always prepared and relieve the teacher of the endless annoyance of individual direction. The apparatus, whenever possible, is made by the pupils; but this kind of illustration is not wholly depended upon. The very best is obtained which the school board—a liberal one—can be induced to purchase.

All experimentation should begin with what the pupil can himself make. But it is a grave mistake to suppose that it should end there. The pupil is helped to become an investigator, a thinker, an inventor by investigating, by thinking and by inventing, but to send him forth with nothing but his own crude and primitive creations would be like graduating a boy in literature by allowing him to admire his own essays and depriving him of Shakespeare. After the pupil has illustrated a principle in a primitive way he is shown how better results are obtained by improved appliances. This stimulates him to sterner effort, enlightens him as to the work of others, and fits him to understand the principles he has illustrated when partly obscured by complicated detail. For it is thus that he will ever after in life be sure to meet them.

Theoretically each pupil should perform all the experiments, but with present equipments this is impracticable. The method of conducting the recitation is as follows: Certain pupils, or the teacher, perform the experiment on a large table in plain sight of the class. No word is spoken until the experiment is finished. Pupils are then called upon to state clearly and concisely what was seen, heard or

felt without being allowed to guess, explain, or theorize. It seldom happens that any two observe the same things in the same way. Let it be remarked here that it may be this seeing things differently that causes so much of worldly disputation. Things seen from different points of observation will, of course, be differently interpreted. This tendency is checked in the class room by not allowing any explanation till all can see the same phenomena and are able to discriminate between the essentials and the non-essentials of an experiment. The experiment is repeated as often as necessary and the facts carefully noted in Note-Books which all pupils are required to keep, under the head of "Observation." They are then called upon to explain in order the different phenomena observed and to note this under the subhead "Explanation."

These class notes are fragmentary and just sufficient to aid the memory in amplifying them when in their own rooms at home they finish a note book for future inspection. This part of the work incidentally teaches composition and the art of expression in a manner unknown to him who requires an essay on a subject on which the pupils have had no mental experience. Correct thought and the proper and forcible expression of that thought, constitutes the whole of education. In these note books the pupils are encouraged to draw illustrations of the apparatus used as a reference aid to their explanation. To draw, necessitates close observation, and that too, of the leading points which the experiment is intended to explain. No drawing is allowed to be copied from the text-book, but only the apparatus used in the class-room. These note-books are made to count one-third in making up the final standing of the pupil, the oral recitations and the final examination paper forming the remaining two-thirds. This is not done to make marks an incentive, but because it is a fair way of representing on the record the relative merits of different pupils.

In connection with the experimental work all are encouraged to the extent of the time to name and point out in machines and appliances which they have seen outside the school the application of the principles of their lesson.

This enables them to see the relation of Physics to the arts of life and helps to dignify the labor of those who deal with these practical applications. A member of this class lately remarked: "I can see Physics in everything." This simply means that he is beginning to look about him and to understand his physical environments. In

addition to the work already described, illustrative projections are frequently made with the *porte Lumiere* and Stereopticon. The *porte Lumiere* is home-made and is regarded by the class as indispensable. The screen mounted on a roller in the front of the room, the blinds for darkening the windows, and the *porte Lumiere* are adjusted by the pupils in three minutes ready for use. On the more difficult topics, such as spectrum analysis, and polarized light, requiring more experimental skill than that possessed by pupils at this stage, an occasional night lecture is given when, with the assistance of some of the older pupils, the teacher gives the necessary illustrations with the Stereopticon. This work helps to increase their interest in the subject and broadens their conceptions of its scope. If it be said that this is the work of the college, let it be answered that the legitimate work of any school is that which can be profitably accomplished. The majority of the pupils of secondary schools will not go to college and it is their right in the secondary school to ask for all that they are capable of receiving. It is not a question of just so much of this or that. It is a question of growth and assimilation. That this growth may be vigorous and healthy, it must be sustained by an inexhaustible supply of nutritious food. Too much can hardly be said against the evils of overcrowding, but to give a pupil all he hungers for is not to crowd him. The only true basis is freedom to give him a little less or a little more than any prescribed standard as his capabilities seem to require. It is not the amount of work beyond the limited catalogue which overworks him. It is that which is given him over and above what he is capable of assimilating, whether this be more or less than the traditional standard.

This, the teacher alone is capable of deciding. He is the only person who knows or can know the precise needs of his class. He is allowed freedom of action and is held responsible for results by the community he serves.

In Chemistry the end to be attained is precisely the same as that of Physics. The psychological conditions above referred to, of mental growth,—of education—are to be constantly held in view and rigidly complied with. The means of accomplishing this end are necessarily somewhat different. By way of illustration the writer begs leave to present an actual case. This he does, not because he enjoys the possession of ideal facilities for teaching elemen-

tary Chemistry, but rather because he is probably hampered with the same limitations experienced by other teachers.

In this class there are ninety-six pupils. The laboratory is small, having only twenty-six by thirty feet of floor space, and while well equipped for experimental work, furnishes room for only sixteen pupils. Each of these workers is provided with a desk fitted up with reagents and apparatus in the usual manner, for pursuing qualitative work. The class works in three sections, each occupying one recitation hour. Each section is separated into two divisions, which work in the laboratory and recite in the recitation room on alternate days. This makes six divisions for laboratory work, three of which follow one another successively during three hours of each day.

Now, to start these different divisions in work entirely new and strange to them, alternating the various divisions, awakening the interest of all and avoiding accidents, will tax the ingenuity and skill of the teacher to a degree known only to him who undertakes it. Success will depend largely on the work of the first week and is, of course, principally dependent on the spirit and metal of the teacher. This cannot be defined in an essay, but as detailed experience is sometimes suggestive, one mode of procedure is here related.

The text-book adopted is Shepard's Elements of Chemistry, which is probably as good if not the best work for Elementary Chemistry yet produced. The teacher receives outside inspiration from the close perusal of such works as the "New Chemistry" of Prof. Cooke, and Nicolls' abridgement of Eliot and Storer's manual.

The first day the pupils are retained in the recitation room for preliminary instruction. The teacher begins the exercises with the air of a man who is perfectly clear as to the method to be pursued and perfectly confident as to results. Not the air of shoddy pretense but the quiet confidence of power gained by the sweat of previous toil. The exercise is begun by a short, simple and attractive experiment occupying not more than five minutes. It matters not so much what it is, as that it secures their attention and awakens their interest. The following regulations are then written on the black-board, the pupils copying them into their note-books. 1. *Before entering the laboratory, each pupil shall deposit \$— (the amount is specified and should be from one to five dollars) which shall be refunded at the end of the term after all breakages shall have been deducted therefrom.* This gives them a new sense of responsibility which they may never have experienced and always shows.

itself in their work. 2. *As a protection against destructive acids, each pupil should provide himself with apron and sleeves.* Some of the giddy ones now giggle, but the teacher illustrates the necessity of the precaution by exhibiting a garment which has been eaten by acids. 3. *Everything must be left strictly in place, and apparatus must never be put away dirty.* A pleasantry is here sometimes indulged in to the effect that the teacher supposes from his own youthful experience that there are several young men in the class looking out for those qualities which will make tidy house-keepers. Who knows what the influence of such a remark might be? 4. *Handle nothing in the laboratory until directed by teacher or text.* The teacher forcibly elaborates upon the dangers and possible accidents that might occur by handling that of the nature of which they had no knowledge. On these dangers even exaggeration is justified. 5. *Work slowly and let each movement be preceded by calm, deliberate thought. First, know just what you want and then reach for it.* The fine disciplinary effect of the laboratory shows itself from the first. The reflex action on the mind following the voluntary control of the bodily movements is an indispensable part of the educative process. 6. *Play, fun-making, or disorder of any kind is strictly forbidden in the laboratory.* There is no uncertainty in the enforcement of this rule. The first approach to disorder is met with rigid and unswerving discipline, such that one case will answer for the remainder of the term. Some of these rules are, of course, useful only for the first few days until the pupil becomes initiated into the new world in which he finds himself.

The second day the first divisions of the several sections go into the laboratory. Assigned by numbers to their respective desks, they are required to make a descriptive inventory of all they find there. Whatever experimental work is required of them should be of the most simple character—something in which they will be sure to succeed. The directions how to proceed should be definite and complete. The object at this time is not original work. It is to familiarize them with their surroundings. They soon learn to devise and invent for themselves. A child judiciously led into contact with material nature will soon learn to adapt it to his needs. They are sent into the laboratory alone even on the first day. Encouraged by finding themselves thrown on their own resources, and on their honor, and in possession of something in which they succeed, they are pleased with newly discovered power and are always eager for

the next day's exercise. The second divisions are retained in the recitation room by the teacher, and occupied, it matters little how, so long as it interests them, until they have had something to do in the laboratory.

On the third day the divisions exchange places. The first divisions are now closely questioned as to their experience of the previous day. Here they are held to strict account for work done in the laboratory and instructed how to keep a neat and complete record of what they perform. These books are not alone useful to the pupil but are a valuable aid to the teacher in estimating the progress of the pupil's work. At the recitation exercise all necessary directions are given for the next day's laboratory work.

Gradually these directions become less and less specific, till, after a few weeks, the pupils will be self-sustaining and independent. It is astonishing how they develop, even in a short time. After the first few days the teacher discovers that there may be selected from each division pupils of special ability in experimental work. Of such, one in each division is selected to a sort of directorship for his division. Thus encouraged, the pupils so selected will seek permission to do extra work outside of school hours in order better to furnish the information which their class-mates will from time to time expect to obtain from them.

Here exist in miniature the conditions of adult life in the outside world. Each one is placed on his own individual merits and his record shows what he does. If some having special aptitude can do more than the prescribed amount, the teacher should be able to place the conditions before them. If others with abilities below mediocre fall below the required standard, what they do is in the right direction and has done all that could be done in the time allotted in the development of their sleepy faculties.

The writer is aware that the latter class of pupils could by another method quite different from the one here described be made to appear much better before an average visiting committee. But we have here assumed that the object of science teaching is not to make a superficial show of parrot recitations, but to develop the faculties of the pupils.

The work of the class thus far described has for its object the arousing and developing of the pupil's powers. But in chemistry there is another class of experimental work, also essential, and it is employed for another purpose. We refer to a class of experiments.

which demonstrate the laws on which chemistry as a science is based. In order that the formulas may be understood, this part of the work is not neglected.

The laws which require special experimental demonstration are: 1. The Law of Conservation of Mass; 2. The Law of Definite Proportions; and 3. The Law of Definite Volumes. After the class has been well introduced to the laboratory an occasional day is set apart for this kind of work, when the experiments are performed by the teacher or by some of the pupils appointed by him. These experiments need not be numerous, but they should be judiciously selected. Some of the experiments suggested by Prof. Cooke have been tried by the writer with such results as to justify their repetition for the benefit of those who may not have tried them.

For the Law of the Conservation of Mass:—Mix copper filings and sulphur in atomic proportions. Weigh carefully and heat until chemical combination has taken place. On re-weighing the weight is found to be the same. Another:—Take a large flask furnished with a close fitting cork through which is inserted a metallic rod reaching nearly to the bottom of the flask. Put a little water into the flask, enough to cover the bottom and float a cork carrying a small piece of phosphorous. When in place the rod should just touch the phosphorous. Now weigh the apparatus; then heat the end of the rod to redness and thrust quickly and carefully into the flask, thus closing the flask at the same time that the hot metal ignites the phosphorous. The phosphorous burns and after a short time the white fumes of P_2O_5 will be absorbed by the water. Weigh again, and although the phosphorous has disappeared there will be found no loss of weight.

For the Law of Definite Proportions: Weigh an amount of silver oxide in a flask connected by a glass tube with a pneumatic trough. A gentle heat drives off the oxygen which is collected by displacement in a tall graduated measuring glass of sufficient size to contain all the oxygen from the oxide used. Weigh the residue of silver and from the volume of the gas, which may be read directly from the glass, its weight may be deduced, by knowing the weight of a cubic centimeter of oxygen. From the weight of the compound and the separate weights of the elements, oxygen and silver, the weight proportions will be found, and if the experiment be carefully made the results will be found to agree with the proportions between the atomic weights given in the text-book. Another: Dissolve a given

amount of silver in nitric acid and evaporate to dryness. Weigh the residue which is silver nitrate. This weight will have a definite relation to the silver dissolved.

The Law of Definite Volumes: Fill and invert in a vessel of acidulated water two test-tubes of equal size, supporting them by any convenient device which may be at hand. Insert into the mouth of each a platinum strip in connection with a battery or dynamo. The water will rapidly decompose, when the volume of the oxygen at the positive pole will be just half that of the hydrogen at the negative pole, thus showing the volumetric proportions of the elements in water when in the gaseous state. These experiments may be multiplied as time permits, and the needs of the class require.

The above experiments are not here given because they are new or original with the writer, but simply because they serve well the particular purpose of demonstrating these chemical laws. The class is made to understand just what these experiments are intended for and is required to take notes after the manner described under the consideration of Physics.

If his observation has been intelligent, the pupil will now understand the full meaning of a chemical formula. For example, if asked what the formula for water, H_2O , says to him he can say: 1. That the compound which it represents is composed of hydrogen and oxygen. 2. That the proportion by volume of these elements is two parts of the former to one of the latter. 3. That their relative weights are as one to eight. 4. That by its conventional form the formula shows that the substance is a compound and not a mixture.

Now it may be asked, what are the total results attained by this method of teaching elementary chemistry? What has the pupil at the end of the term to show for what he has been doing? The answer to these questions will probably depend much on who happens to be answering them. If the examiner is one who knows little of the scope and purpose of the study of Natural Science, and who attempts to measure it on a mere literary basis, expecting the pupil to display large encyclopedic or historic information, the results will probably be disappointing. If on the other hand the examiner comes in frequently during the term, sees the pupil at his work, questions him concerning it, watches his manner, listens to his questions for information, noting his intense interest in the subject, this examiner will, if he be competent, answer: The results are one term of vigorous, healthy growth, and second, that this growth simply

means so much power born only of intelligent self-activity. He will also answer that many of these pupils possess the ability to pursue the subject further without assistance if their individual tastes so dictate; that most of them possess the qualifications to continue the subject in college and this, too, even from the standpoint of information, and that this training has inculcated habits of thought equally valuable to all, whatever may be their chosen occupation.

The relative value of the information incident to a course in science, such as has now been imperfectly pointed out, has throughout this discussion been ignored. The number of facts learned in any school course, whatever may be the subjects or the method of presenting them, is at best small. All that need be said of the facts learned by the experimental method is that information loses none of its value because it is, in part, of the nature of evidence which tests the validity of facts. Natural Science in secondary schools has here been presented from a standpoint purely educational, both as to the objects to be attained and the method of attaining them.

*SCIENCE IN SECONDARY SCHOOLS.**

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Were it the duty of some one to make successful hunters of a promiscuous party of boys and girls, he would, if he were a wise teacher, study the characteristics of those who had achieved success as hunters, the love for the pursuit, the strength of limb, the quickness of eye, the knowledge of the habits of different animals, the reasoning power to divine their thoughts, and the thorough acquaintance with all the arts successfully practiced by other hunters—and he would then endeavor to develop these in his students.

He would recognize the fact that persistence in an arduous chase is as much a matter of determination and of forgetfulness caused by enthusiasm as of brute strength, and that such enthusiasm and determination are generated only by interest in the result.

* This paper was submitted in the competition for THE ACADEMY prize last March, and received honorable mention from the judges together with the suggestion that it be published.

He would therefore probably recount anecdotes and thrilling incidents of adventure in the pursuit of game; would illustrate with sketches of wild animals, of famous hunters and their equipments, and of conflicts between the two; would draw from his students stories of juvenile hunting trips; and, when all or nearly all were alive to the interest and value of thus obtaining food and exterminating wild beasts, he would enlarge upon the preparation necessary for such an undertaking; would tell of the long tramps and the sometimes hand to hand struggles which require strength and great power of endurance; would describe "shooting on the wing," the fleet movements of most animals, and the necessity for rapid and accurate use of fire-arms; would show how the possibility of securing game often depends upon the knowledge of their habits and upon the possibility of outwitting them, and would name and illustrate the various artifices and traps for this purpose.

These introductory steps taken, he would organize his class for systematic work, and would thereafter devote a certain number of hours daily to physical exercise, a certain number to practice with arms, a certain number to the study of the habits of different animals, and others to the lives of great hunters, their habits, their views, and their methods; and, when occasion presented, he would take his class on short hunting trips which should familiarize them with the necessities of the work. By so doing he would also discover the various abilities of his students and endeavor to lead each in the path of his best accomplishment.

Such, I opine, should be all teaching. It should begin in so placing before the student's mind the particular advantages of each bit of arduous labor, that he will do it with delight; for discipline, an important object in any teaching, is never gained of grudging work, but is merely the training in rapidity, ease, and accuracy of an already willing worker and is always the result of careful teaching. It should continue in the daily practice of the arts necessary to a successful prosecution of the object in view—be they manual or mental, and should end in making the student familiar with the practice, as well as the theory, of the subject.

Beginning then with the "results to be sought" in any teaching of science in secondary schools, we enumerate them as:

1. Thorough awakening of interest in the student, with the consequent result of causing him to forget the labor of acquiring, in its pleasure.

2. A complete understanding by the student of why the successive steps of preparation are necessary.

3. The acquisition of scientific methods of thought and work in the recitation room, in the laboratory, and in the field.

4. An acquaintance, as extended as possible, with the facts of the science and with the theories deduced therefrom.

The first is accomplished by a brief account of the early days of the science; of the first crude attempts at measurements in Physics and Chemistry, or of classification in Zoology and Botany; of the lives and doings of the founders, Galileo, Newton, Huyghens, Priestly, Franklin, Faraday, and others, with anecdotes and portraits; of the great accomplishments of the past three hundred years, as compared with the barrenness of earlier time; and especially of the fact that discoveries are every day being made, that the sciences are still growing, and that some of them are only in their infancy.

I think it is well to put upon the wall a chronological chart with the names or portraits of a dozen or fifteen men prominent in the science under discussion, with the dates of their births and deaths, that as the class progresses and the facts are gathered upon which are founded our famous laws and theories, the students may learn to which of these men we are indebted for each of these generalizations. For when, for instance, in studying heat, a class learns that our first definite notions of the Mechanical Theory were gained from the experiments and reasonings of Benjamin Thompson, a New-Englander who lived in the time of the Revolution and was obliged to leave the country for his loyalty to the King, immediately the subject of the mechanical theory of heat is no longer an abstraction but acquires personal charms. And when they learn that the latest and best determination of the Mechanical Equivalent of Heat has been made by Rowland, another New Englander, one of the most important subjects in the whole of modern physics is for that class hung upon two pins from which it will never fall. If each of the other main departments of physics is treated in the same way the facts will group themselves around the names of a few illustrious men, and while the attention and interest of the class are won, they acquire the knowledge with little effort and will later pursue it for themselves. In Chemistry, Zoology, and Botany, the same course can be pursued, for neither immortal laws nor illustrious names are wanting.

Second, I would make it plain at the beginning of a subject, that certain kinds of preparation are necessary for *it*, and, to continue our old subject, I will explain how, for the determination of the Mechanical Equivalent of Heat, it will be necessary to make careful measurements with thermometers; that to do so we must determine whether their standard marks, the temperature of melting ice and that of steam at standard pressure, are still correct; and that therefore these must be re-determined. Thus before beginning actual instruction in any subject, I should outline the main points to be studied and the reasons for doing so. This systematic kind of knowledge is the only kind worth teaching, and in secondary schools it is about as well to let the disconnected facts take care of themselves.

Our work thus far upon the first two objects is but for the final accomplishment of the last two—the real objects of the study of any science—that the students may learn to study scientifically and learn the facts and the deductions.

It seems almost unnecessary to call attention to the distinction between *science* study and *scientific* study; but as the most difficult of the problems of teaching is to make this distinction understood and lived up to by students, it may be worth our while to remember that science study is distinguished from Bible study, or from history study, or from word study, but that there may be scientific study of the Bible, or of history, or of words, or of science. The great distinction between scientific study and any other kind is that the former is strictly inductive, while the others are not so. To cite a particular case, Zoology may be studied in two ways; first, with the endeavor to learn simply the names, appearance and habits of as many different animals as possible; second, to learn these merely as leading to the classification of these animals into genera, species, and families, and then to the further study of these classes to learn not only their life history, but the origin of species and families, with their development and probable future. When the study of the individual is made both subservient and conducive to the study of the race, then, and only then, is the study scientific. So the phenomena of a falling body are of value principally as they help to determine the similar phenomena of all falling bodies, and these as they elucidate the principles of attraction and of motion; while the fact that seven pounds of iron will combine with four pounds of sulphur, leaving nothing over, is worth knowing mainly as one of a great many facts which lead us to the Law of Definite Proportions.

It seems to me a matter of the greatest importance that students should reach the theories of the science only by having followed the inductive reasoning, and by having to some extent experimentally gathered the facts upon which they depend. I should therefore no more think of giving a class Newton's Laws of Motion and afterward explaining what they mean and giving examples to prove them, than I should in the opposite case try to show from numerous examples that the square on the hypotenuse is equal to the sum of the squares upon the other two sides of a right-angled triangle. In the latter case the truth is deductive and is proven without any regard to whether we can actually draw the squares and measure them or not. In the former case, the law is an assumption founded upon the observation of a great many individual cases, and our belief in the uniformity of nature. First, therefore, in science teaching, the individual facts should be brought to the attention of the student; second, the reasons for believing in the uniformity of nature, and, third, the law derived. Let all our science teaching then be scientific, or not only descriptive but inductive. Let us choose such textbooks—for we *must* use text-books—as treat the subject in this manner, and then let us adopt such methods of teaching as shall make our aim most easy of accomplishment.

If the student is *to learn* rather than *be taught* he must see for himself, and to a great extent reason for himself; from which it follows that without what we call laboratory work, science teaching will be the same dry thing that it long has been in many places, and which we are earnestly endeavoring to avoid. It does not follow that the laboratory work of a school should be the equivalent either in time, in apparatus, or in refinement, of the laboratory work of a college; but it does follow that if the students are to learn the characteristics of a pendulum they should have a pendulum from which to learn them. The pendulum need be nothing more than a stone picked up in the street, the suspension a bit of twine borrowed from one of the boys, but the class will soon learn that a pendulum has a constant period, and if they see a long pendulum and a short pendulum vibrating near each other they will learn that the time of vibration varies with the length, and if they are shown how to get the time approximately by counting the number of vibrations which take place in one minute, and are then requested to find at their homes the lengths of the pendulums which will vibrate in a half second, one second, and two seconds, respectively, the fathers will

not own watches enough, nor the evenings have minutes enough to suffice for the ardent students who will that day do as enthusiastic and as conscientious work as ever did the original discover. And the interest excited by the pendulum and by the stories of Galileo and his works, is but faint compared with the wild enthusiasm which springs up when into the room darkened by blinds and shades, or by boards and blankets and shawls and overcoats, a beam of light is admitted on a sunny day, and a prism being put in its path some one dusts chalk from a black-board rubber above the track of the colored beam.

With a little leading even young students follow readily the thoughts of the great discoverers (so easily followed because so closely connected and so logical), and learn to study nature for themselves.

Since sufficient apparatus is now so cheap, since almost every textbook on Physics and on Chemistry contains an appendix, with the prices of all needed apparatus and the names of firms from which it can be most cheaply bought, and since there is no other way of teaching half so easy, the days of mere memory work in Dynamics, in Heat, in Combining Weights, and in Multiple Proportions are surely ended.

But on the other hand, as a boy introduced into a grocery store will soon see little to like in sugar if he is allowed to eat himself sick at first, so our student must not see so much apparatus and so little reasoning as to lose all sense of the value of the experiment. He must always be taught that there is a difference between *experiments*, which are questions with answers, and which duplicated and multiplied lead to general laws, and *illustrations* which merely prove the truth of some man's assertion. I would therefore make the laboratory exercise as conducive to scientific method as is the lecture or the recitation; and as in recitation or in lecture the student's mind must be on one topic and on one alone, so in the laboratory should the attention of each be confined to the work in hand. The student should not only perform systematic work, but he should perform no other during regular hours. It is questionable whether time is not more wisely spent in the old-fashioned way of teaching only out of a book than in some of the new-fashioned ways of allowing students to spend their time in undirected play in an apparatus room. There should be no talking, no staring at other students or their work, and no interference with other apparatus that may be in the

room. Not long since there came into a class of mine which had been studying elementary physics for three months—and no member of which ever thought of touching any other piece of apparatus than the one assigned him, or of devoting any of the precious forty-five minutes to anything but his work—a student from another school also blessed with a laboratory (?). There was on a table in the room some carefully leveled and adjusted apparatus belonging to an advanced class, and within the five minutes that my eyes were turned from the direction of that apparatus and, as it so happened, of that boy, he had ruined the labor of several hours and had done more damage than had been done by the whole class in the three months previous. It is one of the first and most valuable possibilities of a laboratory exercise to teach a student to mind his own business and let other people's business alone.

If, then, we teach experimentally, inductively, and systematically, *what* shall we teach? Answer—Those things which are of most importance in the science, and will be of most importance to the student; namely, in most cases, the subjects which can be treated quantitatively and therefore lead to exact ideas and to exact laws. Any boy or girl prefers finding the lengths of pendulums which beat in one second and in two seconds respectively to being left with the mere knowledge that one is longer than the other; but he or she wants to *find* it and not *be told* it.

I am familiar with the science work carried on in two successful schools. One is a typical country school with an ordinary building, little apparatus, and less money, with a few students, and with one teacher for four science subjects; but here the boys annually discover the laws of falling bodies by dropping stones from one end of the roof of the building and from the highest of the neighboring trees; working in pairs they discover the laws of the pendulum by some of these same stones swung by ordinary strings and wires from ten inches to thirty feet in length; they measure the elasticity of various substances by stretching in succession a piece of rubber and a horse-hair by ounce and gram weights, and wires of copper, brass, and iron by an ordinary spring balance costing fifty cents; they learn the principles of heat measurement by investigations carried out upon thermometers brought from their homes, and upon blocks of metal used for specific heat determinations in calorimeters known to their mothers as dinner-pails; they determine the velocity of sound with a tape measure, an old shot-gun and a few watches; they make

their own galvanometers with a few cents' worth of wire each, and every one of them owns a little battery and a few secondary cells of home-made construction ; and in the sunny days of spring they all combine to darken the room and study reflection, refraction, and dispersion with a small amount of boughten apparatus. In Chemistry they learn the characteristics of chemical combination by heating a mixture of sulphur and iron-filings ; they learn the Law of Definite Proportions from more careful work upon this same experiment, by the action of dilute sulphuric acid on a little zinc in a test-tube, by the action of dilute hydrochloric acid on a little marble in a test tube, and by a few other simple experiments of the same kind ; they learn the Law of Multiple Proportion from consideration of the compounds formed by iron and sulphur, and of those formed by potassium, chlorine and oxygen ; and they learn the preparation of the common elements and simpler substances by the ordinary cheap experiments. But the characteristic of the work done is that they *do* learn these things ; they learn them by personal experiment so that all are understood, and so that few will be forgotten. From this same teacher they learn also Zoology and Botany, or rather he shows them how to study these subjects and guides their reading and their work, discussing with them their gathered information and their conclusions. The school is small, but every student is interested, sees value in the work, and grudges no pains or labor.

The other is a high school in a city. It numbers about eight hundred students and about twenty-five teachers. Its building is large, commodious, and well adapted for its work. It has a corps of four teachers in Physics, two in Chemistry, and two in the Natural Sciences. In each of these departments one of the teachers is the head, organizes and directs the work of the department, and is responsible for its success. The school course covers three years. Physics is required of all students in the second year, and is optional in the third ; Chemistry is optional in both the second and third years ; Natural Science is required in the first and is optional in the third.

In Physics, the work of each week is begun by addressing to the class an explanatory, illustrative, and sometimes illustrated lecture, the object of which is very briefly to review the work of the past week, to point out the important subjects in the important work of the coming week, and to explain any parts which are likely to be unusually difficult. Some time is occupied in interesting historical

sketches, and in experimental illustrations which, being nearly always qualitative, leave exact measurement to the individual student.

The following day is occupied in recitation by sections, but it is customary for the teacher and the students to some extent to change places, and the teacher spends a good share of his time in answering questions on particular points. The object of this day's work is to insure the students' getting clear ideas of what they are going to investigate, how they are going to do so, and what, according to their past experience, the difficulty will probably be.

The third day is devoted to laboratory exercises, and, as problems in measurement are generally given, it seldom happens that a student handles more than one piece of apparatus or concerns himself with more than one problem. The work of the laboratory is understood in theory from the work of the two preceding days, and as each student is well acquainted with the appearance of the apparatus and comes prepared with paper and pencil, no time is lost. The work is the same for each member of the class, but for greater expedition and better results students are generally arranged in pairs; no talking is allowed except between the individuals of a pair, and this only in a low tone; neatness is required in all things, and upon a signal five minutes before the close of the period each piece of apparatus must be put in order, the stools put under the tables, and the general appearance of the working room made what it was upon the entrance of the class. The results of their measurement, if such is the work of the day, with the sources of error encountered and the means used for their elimination, are to be carefully written up and handed in on the following day. During this exercise the greatest care is taken that each student shall understand his apparatus and how to avoid errors. It is deemed much more important, for instance, if the student is determining specific gravity by Jolly's balance that he should repeat the measurement four times with careful avoidance of air-bubbles and other detriments to good work and thus determine his limits of accuracy, than that he should hurriedly and carelessly make half a dozen determinations of as many different substances. Extension of his knowledge by measurement of other substances may be made at any time, but it is almost impossible to change a slovenly habit when once it has been acquired.

The sections into which the school is divided number about twenty-five students each, which of course is about twice as many as one man can properly guide in a laboratory ; and to avoid the difficulty of want of oversight which would be fatal to the object in view, the situation is explained at the beginning of the year to each section in turn, and the members are requested to elect by ballot two suitable assistants. It is explained that those chosen should be among the best in the section, should have some natural mechanical aptitude, and be two whose advice members of the section will be willing to follow. In the sections of the second-year class there are thus elected twenty assistants, among whose duties it is to keep themselves well in advance of the class, and who under the circumstances are able to meet the head of the department and chief assistant during an otherwise vacant period early in the week, and at that time to get their own laboratory drill. When the sections meet, these assistants take charge of half the class each, and the teacher's office is thus merely one of general oversight.

The work of the week is closed by a rigid recitation, for which all are thus prepared, which all therefore enjoy, and in which numerous applications are made of their lately acquired knowledge.

Frequent written reviews (monthly or at convenient stopping places) are an important feature of the work and are found to be of great value in the constant preparation which they require, in the habit of rapid thought and concise expression which they necessitate, in the opportunity they afford for finding the missing links in a student's knowledge, and in the benefit accruing to the class from the general discussion of prevalent mistakes and of marks, which regularly follows the review. During the discussion the full value of each question in marks is given, a correct answer is outlined or read from one of the papers, and each student is requested to estimate the total of marks which he or she obtained. The marks assigned are then read, and any discrepancy of more than three or four per cent is considered by the teacher to require particular examination, for either the student misapprehends some particular question or its answer, or his ideas of relative value are astray. A few exercises of this kind have been found much to improve the discriminating power of students in answering, and to increase their desire for these written reviews, whose very frequency disarms them of the detrimental nervous effects of infrequent and formal examinations.

The quarter's record is the average of three sets of marks ; one of which shows the effort of the student in good recitations, in close attention to the work of the class, and in general demeanor ; the second, the neatness and accuracy of work in the laboratory ; the third, marks attained on written reviews. There are no secrets from the students ; the system of marking is fully explained at the beginning of the year (and generally meets with hearty approval) ; the book of marks lies upon the table for the inspection of any student, and after the first month the privilege is seldom abused.

The work thus far outlined, with that of the third-year class, occupies the time of two teachers. The other two are meanwhile engaged in educating the hands, the eyes, and the ideas of the boys. by a systematized course of work in wood and metals, which was organized by the teacher in charge of the department and carried out as a necessary preliminary to the course in Physics, but which is elsewhere called manual training.

The accurate ideas and the skill required in the wood-working shop during the first year enables the boys easily to construct the simpler kinds of apparatus which it is necessary extensively to duplicate ; but just as one class of boys trained for a year in a good wood-working shop is much better fitted in ideas as well as in skill, for a course in Physics, than is another equally able class without the shop training, so in a place like this are the boys better fitted for scientific work than the girls of equal mental ability who have had no manual training. It may be considered within the province of this article if I say that having had some experience, I see no reason why girls should not be regularly instructed in the use of wood-working tools, but on the other hand every reason why they should be.

And I also strongly recommend the general adoption of a similar training system, preparatory to all work in Chemistry. It is useless (as any experienced teacher knows) to attempt to do more during the first few months in Chemistry than to teach the ordinary mechanical processes, such as filtering, evaporating, cork-boring, etc., to inculcate *accurate* and *discriminating* observation, and to induce a moderate amount of reflection or of inference-drawing thought. But all this is not Chemistry, and ought not to be so called ; it is merely the preliminary training of mind, eye, and hand, but no chemistry worthy of the name is possible without it.

Drawing, which is required throughout the school, is of the greatest benefit to the teachers in the Science departments, who generally require diagrams in examinations and in the every-day description of apparatus. It also develops the latent free-hand genius of some few students, and in this school the physical recitation room is adorned with crayon portraits of the foremost men in the science, drawn by the students, and some of which would not disgrace a professional artist. The stimulating effect of the faces and of the examples of these men is very noticeable in the class.

The science teaching in these two schools has certain common characteristics. It aims at the cultivation of powers of perception and reflection, and at extensive acquisition of fact and method by so inspiring the students that in a majority of cases they require merely a guiding and not an urging hand. It endeavors to do this by making of even its youngest students veritable physicists and chemists by helping them to investigate nature, rather than mere store-houses of historical knowledge by teaching them only the results of others' investigations. And to meet the objection of the "grave difficulties which exist in making the laboratory study of physical science feasible in the large lower classes of our high schools and academies," it aims to systematize the work by giving all the members of a class the same work at the same time; to furnish the dozen or fifteen sets of apparatus necessary in such a case for each experiment by a home-made manufacture of all the simpler kinds; and to render this both possible and easy by a preliminary course of training.

A small amount of money will furnish a shop with all necessary tools, and the equivalent of many hundred dollars' worth of apparatus can easily be made in a year. In the city high school mentioned, a dozen Jolly balances, a half-dozen spherometers, a diffraction bank and a heliostat were the principal results of one year's work.

The main object of this paper will have been accomplished if it appear therefrom that the teaching of Physics and Chemistry may be made at the same time experimental, inductive, thorough and interesting, but that the road to success in the development of this method lies in a preliminary cultivation of the organs and faculties involved.

*A METHOD OF TEACHING COLLEGE PREPARATORY HISTORY.**

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Our method of teaching any study must depend largely upon the amount and kind of knowledge or training sought, the maturity of the minds with which we deal and the amount of time to be devoted to the study. This paper will consider the requirement at our colleges in ancient history only. If we take the Harvard requirement in History as a standard, and this requirement is probably the most exacting, it is fair to say that while a boy can pass who is simply well furnished with bare external and unrelated facts such as dates of battles, names of leaders, incidents in their lives and summaries of laws and constitutions, yet a boy who has studied the characters of leaders, the characteristics of national life and the causes and results of wars, would be more likely to do so. The last two catalogues have contained a recommendation that students read works outside the manual used in preparation—works which give decidedly broader views of the History, and an increased number of optional questions in the last examination gives a teacher increased liberty of choice as to the subject matter of his teaching. The number of facts, dates and names required by the examination is not large, considerably less in amount than five years ago. From information kindly furnished by a dozen representative schools, which prepare for Harvard, some of them being its principal feeders, it appears that the average time given to both Greek and Roman History is about one hundred recitations and in several cases many of these recitations are with lower classes of the school. The time varies in different schools, from forty to one hundred and forty recitations. Furthermore the number of subjects on which boys must be prepared for college and the extent of training required in Greek, Latin and Mathematics, allow neither a large amount of time for preparation of history lessons nor any considerable increase in the number of

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recitations given to it. At Newport the class beginning Caesar receives about twenty lessons in Creighton's Primer and the boys who are going to college have three recitations a week during the year in which they take their preliminary examination. Of the twelve schools mentioned above, six use Pennell and six use Smith for Greek history; two use Smith, four Creighton and five Leighton for Roman history. It will be noticed that there is a decided tendency toward the use of smaller books than Leighton and Smith, which are mentioned in the Harvard catalogue as indicating "the amount of knowledge demanded."

The Harvard examinations do not require anything like the amount of detail given by Leighton and Smith, and it is hard to see how those who use these books with any degree of thoroughness can find time for the highly desirable outside reading recommended. Would it not be better for Harvard to suggest smaller books, say Creighton and Pennell, and require one of the outside readings instead of recommending three?

It has always seemed to me that it would be better to limit the period of Roman history to the end of the reign of Augustus instead of continuing it to Commodus. The former period would include the time of all the preparatory authors, and the requirement is now for so long a period that I am obliged to slight the last part of it.

As to the requirement at Harvard all will be interested in an extract from a letter of Prof. Macvane, who has charge of this requirement. The letter was written in answer to one of mine:

"The new form of entrance paper in ancient history was adopted deliberately. As to the permanence of it, no man can vouch. I can only say that we have seen no reason hitherto for thinking the change a bad one. We shall undoubtedly continue the use of optional questions. At the September examinations we separated the questions on the manual from those on the additional reading, apparently with good results.

The requirement, as announced, is not such as the history department would make it, if free to shape it in the interest of history alone. We wished to leave the choice of a manual with the teacher, and to name the selections for reading as part of the course, to be demanded of everybody. This would be only to extend to our entrance course the same method used in our college courses. We believe that the better students would find this method no harder than the narrow study of a manual, and vastly more instructive. But the Faculty was afraid of doing anything that even seemed to increase the difficulty of getting ready for college. The requirement, as announced, was drawn up as a sort of compromise. We hope to get the help of the teachers in making the school courses of history real bits of historical study, so far as they go. To attain this it may be necessary to cover a less extended field.

Your suggestion as to ending in Roman history with the reign of Augustus is in this view worthy of attention.

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"Any recommendations the leading teachers may offer towards improving the course announced, will be sure to receive careful attention. If for example you will recommend the substitution of Creighton for Leighton, with selections to be read by all in conjunction with the manual, the recommendation will not be without weight in our Faculty."

The following are the prominent characteristics of the method which I am employing :

1. Almost exclusive attention to the facts which are essential to the comprehension of Greek and Roman life and its development.
2. The study of *primitive* facts, such as maps, pictures of Greek and Roman works, speeches and writings of Greeks and Romans.
3. The use of questions about these facts which require not the simple repetition of them, but the gathering and comparison of different facts and the drawing of inferences from them by the pupil himself.

In following out this method I use Miss Sheldon's Greek and Roman History, because it is the only book adapted to it, and I feel the need of a book. Boys need that definiteness of instruction which only a book can give. The talk of the teacher is soon forgotten, but the book is always at hand to be brooded over. There are many specimens of ancient life which it is practically impossible to get before the minds of the pupils without printer's ink constantly before the eyes of all. There is ample room for a teacher's guidance and inspiration in using the Sheldon.

To illustrate the difference between Sheldon and other books:—We have been repeatedly told that books on history are too much devoted to details of battles and sieges and have been promised better things, yet Cox in "the best short history of Greece," according to Stanley Hall's book on history, gives over one-fourth of all his space to the Peloponnesian War, exclusive of the space devoted to its causes and results, and Smith in his shorter history gives over one-seventh. Miss Sheldon gives fully its causes and results, but only a fraction of a page of its details. Smith tells the pupil that "the funeral oration of Pericles is a valuable monument of eloquence and patriotism, and particularly interesting for the sketch which it contains of the Athenian manners, as well as of the Athenian constitution," but gives not a word of it. Miss Sheldon gives a page and half of this "valuable and interesting" oration, and sets pupils to

work studying the picture of the Athenian manners and constitution which it contains.

To make clearer the difference of methods, let us compare the account of the battle of Cannae in Miss Sheldon's book with that in Leighton. I do not take Leighton because it is a conspicuously faulty book, but as affording a fair sample of the usual method of treating historical facts in short histories. The book has many excellencies. It is conscientious in its statements, presents the latest result of investigation, has many useful illustrations, and is fairly attractive in appearance.

I suppose most thoughtful teachers of history would agree that the battle of Cannae was chiefly valuable (1) as showing the wretched fault of Roman organization which left the Roman army headless and allowed Varro to precipitate the battle; (2) as showing the strong points of the Roman character which their attitude after the battle brought out. At all events, so thinks Mommsen. Leighton gives about two pages and a half to the battle; one-half a page of this space is given to a genealogy of Paulus, a page to a plan of Cannae, the order of the battle and its details. The exact number of men engaged is put down, and the exact loss in each branch of the Roman service is given. Perhaps one-fifth of the space is devoted to the attitude of the Romans after the battle, but I do not find any attention or even distinct mention given to the divided counsels of the legally equal consuls. Instead of letting the facts, eloquent as they are, speak for themselves, the author tells the pupil that "the old Roman pride and stubbornness saved the state." But the facts as given by Miss Sheldon show that the Roman self-sacrifice for the state was as necessary for success as the Roman stubbornness. The Romans were as stubborn and as proud in the days of Jugurtha as in the days of Hannibal, but they did not love the state so well. The basis of the Roman success in this instance was moral after all. When we consider the need of more ethical teaching in the schools, has not the author lost an excellent opportunity to bring into the foreground the great principle that "he who loveth his life shall lose it"—true of nations as well as of individuals—and that self-sacrifice is the core of all patriotism?

Miss Sheldon's treatment is as follows, the account being largely translated from Livy:

"The last of these victories is at Cannae, where one-seventh of the Italian forces perish. Thereupon Syracuse and Macedon ally themselves with Carthage; many

of the Italian towns, to which Hannibal promises liberty, accept him as a friend, though the colonies stand by Rome.

"Rome now decrees that the days of mourning for the dead of Cannae shall be shortened; that new legions shall be at once enrolled, including criminals and slaves; that new weapons shall at once be forged, and that, meanwhile, arms shall be taken from the temples, from the dedicated spoils of former victories.

"Rome is pressed for funds, but her richer soldiers offer to fight without pay; the creditors of the state delay or decline to demand their dues, and again a fleet is fitted forth by private effort.

"The consuls commanding at Cannae were Varro and Paulus; the desire of the former was to fight, the policy of the latter to annoy the Cathaginian forces. They held command on alternate days, both armies being in camp. Hannibal 'provoked the enemy by a skirmishing attack. Upon this the Roman camp began again to be embroiled by a mutiny among the soldiers and the disagreements of the consuls;' but nothing was done, since Paulus was for that day general. But 'Varro, on the following day, without consulting his colleague, displayed the signal for battle, and forming his troops, led them across the river. Paulus followed, because he could better disapprove of the proceeding than withhold his assistance.' Thus, then, the Romans were led at the battle of Cannae, where so many of them perished. When the news of this defeat reached Rome, among other measures, Quintus Fabius Pictor was . . . sent to Delphi to enquire of the oracle by what prayers and offerings they might appease the gods. . . . Meanwhile certain extraordinary sacrifices were performed, according to the directions of the book of the fates; among which a Gallic man and woman and a Greek man and woman were [buried] alive in cattle market."

Then come the questions on these passages; they are in part as follows: What characteristics of Rome appear when she receives news of the defeat? What fault of Rome's organization is plainly shown at Cannae? What Roman magistrate was needed at such a crisis? Why?

You will notice in the above that the emphasis is laid not upon the details of the battle, which the pupil does not need and cannot long remember, but upon two points of supreme importance in Roman government and character, that not a single inference is anywhere given by the author, but that several questions are supplied which call for earnest thought upon the facts stated.

These facts and questions I assign to my class. They come before me with answers of greater or less merit written on slips of paper. When going over advance work I allow them to read these answers. We discuss them fully. One boy gives one characteristic of the Romans, a second gives another or modifies the answer just given. Frequently a complete answer is given without any help at all from me. Often I add to or modify my own notes from answers given in

the class. When I help it is generally in the way of suggesting an unobserved fact, correcting a misused word, explaining the meaning of a question, completing an answer or showing the relation of the idea being discussed to our own time or country. It is understood that in the review the answers will be in the memory and complete, and that they will also be neatly copied into a blank-book kept for the purpose. The answers in these books show, generally, that diversity and individuality, which is always desirable as indicating real work. In naming qualities and in making answers concise, yet complete, valuable practice is secured in language as well as in thought.

The following list of examination questions in Greek history, used a few weeks ago, may show something of the work that is aimed at. The questions were never asked before in the form in which they here appear. The answers were, on the whole, satisfactory—more so than those secured by the use of other text-books. I shall give two of them later.

GREEK HISTORY.

I. Locate Delphi, Delos, Aegos Potami, Cyrene, Thermopylae. Dates of the First Olympiad, the Athenian Supremacy, the Death of Socrates, the Battle of Leuctra, and the Death of Alexander.

II. What is the Historical value of the poems of Homer? Show by facts and incidents the condition of Greek civilization in the Heroic Age.

III. Compare and contrast Peisistratus and Pericles as political leaders and governors.

IV. Account for the success of the Greeks at Marathon and at Plataea.

V. Show by incidents and extracts the effects of the Spartan constitution and discipline.

VI. State the influences and historical movements in Greece tending to Hellenic unity, and how far these were successful.

VII. Speak of Greek art; its directions; its characteristics; its centres; its greatest works.

To give a little more complete ideas and to get the scholars acquainted with a first-class historian I have prepared a list of references to Mommsen to be read *after* the studies in the Sheldon to which they pertain have been mastered. None of these references is more than four pages in length and very many of them not more than a page and a half. Of course they can be used with any history as well as with Miss Sheldon's. They are so short

that, if one has two days interval between recitations, a class of eight or ten might consult even a single edition of Mommsen in the school-room. Four out of my class of five have on an average made use of these references. I always enquire how many have done so and ask questions on the subject matter of the Mommsen.*

It is, however, the thought work required by the Sheldon which I value most highly. The ability to interpret a few facts is worth more than knowledge of many. Much as we need wide readers, we need thinkers more.

For a clear understanding of what has already been written some explanation is necessary as to several matters. Two or three inevitable questions must also be answered.

It should be made emphatic that in many cases the facts which Miss Sheldon gives are not complete for any one department of history but only representative of the facts in that department. Thus Cicero represents the cultured Roman of his age in many things and Verres a provincial governor in many. The treatment of the Italian allies in the war with Antiochus where they furnished two-thirds of the men but received only one-third of the booty is a fair sample of their usual treatment. The pupil must rely upon the assurance of the author that the facts given are representative just as we rely upon the honesty and intelligence of a dealer who assures us that the apples in a barrel are like those on top. It is manifestly impossible for the pupil to go through Greek and Roman literature and remain and thus obtain a complete survey of the whole field. He cannot make a complete generalization. Great harm may be done the pupil by giving him the idea that he goes through the complete process of advanced science for himself in an elementary course. The most difficult and wearisome part of this process is the collection of complete and certain facts in the department of inquiry, and the proper arrangement of these facts. This work must be reserved in a great measure for the college or university years of study. But though the elementary student cannot do all that science requires he can do part of it. He can draw many just conclusions from facts already collected and arranged.

The facts which Miss Sheldon presents for observation are, so far as I can judge from my other information and especially a some-

*One of these reference lists is given at the end of this article.

what careful reading of Mommsen, true, well arranged and representative when she intends them to be so.

The questions require a thorough knowledge of the material for thought which the book contains, an elementary knowledge of Geography, United States History and current events, the constant use of an unabridged dictionary and nothing else except thought.

The idea of wider reading has been so constantly associated with historical investigation and thought that many have come to feel that the *thought* is impossible without the *wide reading*. This is a mistake. One *must begin* by thinking about a sentence. A boy cannot read profitably many facts before he has learned to understand the meaning of a few. I have spoken of a short course of Roman history which I give every Latin class after it has been studying a year. In this course a most important exercise is this: A pupil is asked to read carefully and slowly a paragraph of the Creighton and the class is told to follow. When the reading is completed and a moment for thought given, I ask some member of the class to tell me with his book closed, very briefly, the principal facts of that paragraph. During the first few of these exercises not one in two can do this with even approximate accuracy. Many more than this can give most of the facts in the paragraph in order, but they cannot discriminate between them so as to tell me which one is the most important and just how the others are related to this. A student who cannot analyze a paragraph with reasonable success is incompetent to read profitably fifty or even twenty-five pages as a history topic. He must learn the worth of facts and their relation to each other by the study of paragraphs before he can freely read pages. Too much prominence is given to the amount of reading secured in a course of history. It seems to be taken for granted that if reading is secured everything is accomplished. I have before me a clipping from the the Journal of Education for March 15, describing a course in Roman history. The author says "our aim is to encourage reading upon the subject," and in the remarks which follow it is not apparent that any other aim is at all prominent. We all know that a well read man will often preach a sermon which is entirely without analysis or original thought, but which is a patchwork of others' ideas. Reading, most emphatically, is not in itself education. It may mean much and it may mean almost nothing.

Do not misunderstand me. Wide reading must ultimately be a part of every liberal course in history, but it cannot come ordinarily

at the beginning of that course because then the pupil cannot digest it.

I have heard it urged against the inductive method that the results left in the scholars' minds are not definite enough, and that the work of the memory is neglected. I can see that teachers who are disgusted with mere memoriter work, and enthusiastic over the new method, may fly to an extreme, and be lax about insisting upon the requisite amount of memorizing. This is a mistake to be guarded against, but it is by no means inherent with this method or a necessary part of it. In fact, the likelihood of good memory work is increased, for, while the number of facts to be remembered is decreased, these facts are related to each other and associated in the mind with some broader truth deduced from them. One of my boys expressed this idea when he told me that under the old system he soon forgot what facts he learned, because he did not use them or associate them with anything else. To illustrate how I try to have every conclusion based on facts which must be at command, let me quote verbatim two answers given on the examination in Greek history of which mention was made a little while ago. One of the questions was as follows:

"Show by facts and incidents the condition of Greek civilization in the Heroic age."

One of the answers is as follows:

"In the Heroic Age the government consisted of a king, council of elders and assembly of people. (The assembly of people did not have so great power as in later times, however.) There was equality everywhere. Odysseus was welcomed by the king of the Phaeacians, the king not knowing who he was. Odysseus ate food with Eumaeus a swineherd; in religion, the Greeks believed in many gods; that the gods ruled all things, but they represented gods as being like to men in many things, e. g., they loved music, for Apollo was pleased when they played lyres for him; they slept; that there was wrangling among the gods as represented in the story of Hera taunting Jove.

"In regard to future life they believed the person who died remained in the same condition in which he died, e. g., if he was wounded and died from the wound, he lived in the hereafter with that wound; and that death was undesirable. Achilles' speech to Odysseus shows this. Kings did not shun labor, for Ulysses made his own bed, built a chamber 'with stones close set.' The woman was under the direction of her father, husband and son, but she occupied a place in the heart. This first is shown by Telemachus and Penelope when Telemachus commands her to do something,—the second when Telemachus refuses to give his mother to the suitors.

"Greek civilization is now in its germ. Minstrelsy, dancing and athletic sports are enjoyed; but these are but precursors of music, sculpture, etc."

Here is another answer from another boy to the question : Show by incidents and extracts the effects of the Spartan Constitution and Discipline.

"The effects of the Spartan constitution and discipline were to make the people less civilized, narrow-minded, conservative, to increase their strength in war, but to check the growth of natural affection and the rise of arts and letters.

"They were less civilized than the Athenians, as was shown in the Peloponnesian War. Athens requested that the trouble be settled by arbitration, but Sparta refused.

"Their children received no education but that of arms.

"The lack of natural affection is shown by the reply of a Spartan mother, who said that she cared not whether her sons were dead or not as long as the country was saved. But the narrow-minded selfishness, and lack of patriotism and common affection of the Spartans is best shown by the Peace of Antalcidas, by which Sparta deliberately abandoned the Greeks of Asia Minor to the Persians."

It will be well in this connection to say that the success of this method cannot be judged by the external results. There are many errors in expression and some looseness and incompleteness of thought in the answers just quoted. This would not have been so apparent if they had been writing the remembered words or even the remembered ideas from some text-book. They were giving the result of their own thoughts about certain facts, and just as the free-hand line is more imperfect than the ruled line, but immensely more valuable as an exponent of real work done, so the thought answer is far beyond the book answer, though outwardly more imperfect.

Again, this very practical question may be asked : Does the book give enough information to prepare a boy for Harvard? Yes, with a very slight modification. To make this plain, I will read from the last June examination paper those questions which a boy would be specially prepared to answer by the study of Sheldon :

1887.—PRESCRIBED.

ANCIENT HISTORY.

I.

(a) [Take FIVE.] *Elis*, Locris, *Megara*, Mytelene, *Corcyra*, Arginusae, *Leuctra*, *Chaeronea*,—where? Mention (with dates) historical events connected with four of these places.

(b) [Take FIVE.] Caudium, Thurii, *Saguntum*, *Zama*, Praeneste, *Pharsalus*, *Pydna*, Heraclea,—where? Mention (with dates) historical events connected with four of these places.

II.

[Take any two.]

1. [Take two.]
 - (a) The reforms of Kleisthenes.
 - (b) The Peace of Nicias.
 - (c) The destruction of Corinth.

2. What grievances were complained of by the allies of Athens during the Athenian supremacy? In what respects did Sparta use the supremacy differently from Athens.

3. [Take two.] Peisistratos, Cimon son of Miltiades, Pheidias, Kleon.

4. [Take two.]

- (a) Commercial importance of the Greek festivals.
- (b) The Greek ideal of an educated man.
- (c) The success of Pericles as a democratic leader.

III.

[Take any two.]

1. Mention in order (with dates, but without description) the successive stages of the Roman conquest of Italy. What means did the Romans use to strengthen their hold on Italy?

2. [Take two.] Regulus, Germanicus, Trajan.

3. Explain rogatio, interrex, jus auspiciorum, jus honorum, patrum auctoritas. Describe the Hortensian law or the Valerian laws.

4. What were the chief grievances of the Italians at the time of the Gracchi? Was Tiberius Gracchus a revolutionist?

Admission. (1) 1887.

The questions which I have quoted are in each case sufficient to cover the requirement, and are among the best questions on the paper. The only possible difficulty for a boy who knows his Sheldon would arise in the matter of geographical names and dates. On the paper only four of the five places, the location of which is required, are found in Sheldon.

It would be well to have a boy insert in his book occasionally a date or name not given, but the number of these names and dates need not be large. For the other questions which I have read the answers of a boy drilled in Sheldon would be more intelligent than those of a boy drilled in an ordinary text-book. It must be remem-

bered, of course, that the few facts given in Sheldon in the summaries of events must be very rigidly required *in toto*. It will not do to take them up in the general way which is permissible in a book like Leighton.

As to the time required for the course in Sheldon, the average number of recitations given in the twelve schools I have mentioned, one hundred, would be rather scanty if they are like mine, only forty-five minutes long. There are thirty-one studies in Greek history and twenty-three in Roman up to the Empire—fifty-four in all. I find that we average about two-thirds of a study to a recitation, and therefore require about eighty recitations of advance work to cover the ground. For the few recitations which I can give to the Empire, and for review of the bare facts, I shall use Creighton's Primer, which I like very much. With one hundred and twenty recitations with a class during the year before the preliminary examination, the ground of Sheldon could be covered, and one of the three recommended authors for reading in the Harvard Catalogue read and discussed.

At Newport we have used and intend to complete the Primer on the Roman Constitution. The author of this little book has straightened out the difficult subject which he has chosen wonderfully. The subject itself seems especially appropriate in studying the Romans, famous as they have always been for law and government.

The Sheldon is hardly adapted to the lower classes of a high school, but any teacher will profit by a careful study of it while teaching such classes in history, and many of the questions may be used if they are written upon the board some time before the recitation for the study of the class.

In conclusion, let me say that any honest criticism upon this paper, however severe, will be very welcome and helpful. I also venture to remind you that the expression of the preferences of teachers as to college requirements in this study will have weight with the colleges.

REFERENCES TO MOMMSEN'S HISTORY OF ROME. (Scribner's Edition).

The references are adapted to "Sheldon's Greek and Roman History." If used with Sheldon they should not be consulted by the pupil till after the "Studies" to which they belong have been mastered. Each teacher must judge for himself just how much of the pages referred to is upon the given subject. The references are in all cases inclusive.

MOMMSEN, VOLUME I.

	pages.	Sheldon, after studies in the following pages.
Ancient History, its divisions and meanings.....	23, 24	130
Geography of Italy.....	25-27	130
Three political or social distinctions at Rome and the resulting conflicts.....	319, 320	137
Italian measures and the decimal system.....	271, 272	144
Character of Latin Art.....	611, 612	144
Character of Roman Law.....	215, 217	146
National Achievements of the Præ-Punic period and the relation of the individual to the state.....	578, 579, 581	151

VOLUME II.

Characteristics of the Phœnicians.....	9-13	155
Rise of Carthage.....	13-17	155
Attitude of the Romans after Cannæ.....	162-165	155
Results of the Second Punic war (outside of Italy).....	224, 225	155
Provincial administration.....	82-85	158
Character of Hannibal.....	114-116	162
Results of the Second Punic war (in Italy).....	226-229	162
Character of Scipio Africanus Major.....	189-191, 335	166
The rise of the Patricio-Plebeian nobility.....	372-375	169
Cato Major.....	481-483	169
Hellenic influences.....	471-473	169

VOLUME III.

The ruin of the Italian farmers.....	106-108	172
The ruin of the Constitution and the perils of Rome from without.....	471-473	172
The lessons of the Jugurthine war.....	199-201	180

VOLUME IV.

The democratic-military revolution.....	134-141	175
Provincial administration of the oligarchy.....	631-634	182
The Romanizing of the West.....	255-258	187
Cæsar and his work.....	662-665	187
Cæsarism, true and false.....	556-558	187

BIBLIOGRAPHY—CHEMISTRY.

REMARKS ON A WORKING LIBRARY.

PROF. A. B. PRESCOTT, ANN ARBOR, MICH.

A working library in a department of experimental science, consists, (1) of the repositories of its contributions, of periodical issue, and (2) of treatises and compendiums of the science, of discontinuous issue. The periodicals, in their growing sets, constitute a living library, whose value, when unbroken, in most cases increases with age, in even proportion. Books that undertake a finished presentation of the state of science at the date of publication, go to make a dead library, whose editions as a rule diminish in value as they become older, and when later editions supplant them. As in educational service, so in the book market, it appears that complete sets of the good periodicals are, after a few decades, almost always worth more than their subscription price, while books other than periodical repositories steadily diminish in their current rates, unless for some exceptional antiquarian demand.

In resort to the original reports by which science is established, the reader has the best of the literary opportunities to make science his own, by a growth of knowledge in his own mind like the growth of learning in the world. In resort to an encyclopædia, made up of distinct articles upon separate topics, the reader holds a considerable educational advantage, in the demand upon his own powers for adaptation of material. But in dependence upon a systematic treatise for the science under study, the reader rests most upon his author and least upon himself.

Inasmuch, however, as those who do not have a life-long devotion to chemistry cannot provide themselves with a library of past chemical periodicals broad enough for daily demands, and cannot give time to search in so wide a field, it becomes desirable, if possible, to use a chemical encyclopædia, and if this is not to be obtained, to have at hand one full systematic treatise. In English there is, as an encyclopædia, the dictionary of Henry Watts. As a systematic treatise, there is, first, the work of Roscoe and Schorlemmer, and

next, of good ones that are brief, Tidy's is the one selected in the following list. If German can be resorted to, the *Handwörterbuch* of Landenberg, now being issued (Breslau), is to be named, and for organic chemistry Beilstein's second edition may be added. As a periodical, to grow into a reference library, we are fortunate in having the journal of the Chemical Society of London, as described in the list. The *Berichte der deutschen chemischen Gesellschaft zu Berlin* is now richer in its current issues, probably, but the set of accumulated volumes is younger and not more valuable.

Certain official reports and society publications are named in the list below, not because of any exceptional importance of those named, but to remind teachers of the advantage of receiving such current statements of the chemical problems of the present time, in the reports of the applications of chemistry to the industry and polity of our country at present, and the annual bibliographies of this branch of science.

BOOK LIST.

WATTS: *Dictionary of Chemistry*. An original issue of five vols., followed by three supplements, the last in two parts, making in all nine vols., of about 1,000 pp. each, 8 vo., closely printed. Vol. 1 (as partly revised), 1874; Third Supplement, last part, 1881. London: Longmans & Co. [List, £14 8s.] [Offered, in current English announcements, at about £8.] *A new edition* is forthcoming.

[Vol. 1 reaches the writer at this date (April, 1888). The new edition is entirely re-written, greatly condensed, and is to be completed in four volumes of 750 pp. each. It excludes analytical chemistry and chemical technology, with the promise of another dictionary on the last named subject. Dealers offer the set at 32s. sterling per volume. Vol. 1, 2 guineas, list.]

Alternative with Watts's Dictionary:—ROSCOE and SCHORLEMMER: *Treatise on Chemistry*. Inorganic, 3 vols., 8 vo., separately furnished. Organic, 3 vols., and to require further two volumes for completion. New York: 1878 to 1887. [List, Inorganic, in all \$11. Organic, \$5 each volume.]

REMSSEN: *Theoretical Chemistry*. Third edition. 12 mo., pp. 318. Philadelphia; 1887.

RICHTER: *Organic Chemistry*. Translation by Edgar F. Smith. 12 mo., pp. 710. Philadelphia: 1886.

SADTLER: *Chemical Experimentation*. For the use of lecturers and teachers. 8 vo., pp. 225. Philadelphia: 1878.

CALDWELL and BRENNEMAN: *Introductory Chemical Practice*. 12mo., pp. 123. New York: 1878.

FRESENIUS: *Qualitative Chemical Analysis*. Grove's translation. Tenth English from 15th German edition. London: 1887. S. W. Johnson's translation (8 vo., pp. 500.) New York: 1883.

FRESENIUS: *Quantitative Chemical Analysis*. From sixth German edition, in 2 vols. Vol. 1, 8 vo., pp. 575. London: 1876. Translation by Allen and Johnson [abridged] from English and German editions. 8 vo., pp. 883. New York: 1882.

BLYTH: *Foods, their Composition and Analysis*. 12 mo., pp. 586. London: 1882.

LANDOLT and BERNSTEIN: *Physikalisch-Chemische Tabellen*. 4 to., pp. 249. Berlin: 1882.

SHORTER BOOK-LIST.

ROScoe and SCHORLEMMER: *Inorganic Chemistry*. Three vols. [As above.]

[Alternative with Roscoe and Schorlemmer.] TIDY: *Chemistry*. A revised edition. London. 1888.

REMSEN: *Theoretical Chemistry*. Third edition. 12 mo., pp. 318. Philadelphia: 1887.

REMSEN: *Organic Chemistry*. 12 mo., pp. 364. Philadelphia: 1885. Of value for methods of teaching.

SADTLER: *Chemical Experimentation*. (See longer list.)

FRESENIUS: *Qualitative Chemical Analysis*. (See longer list.)

CERTAIN OFFICIAL REPORTS.

Smithsonian Institution. H. CARRINGTON BOLTON: *Annual Reports of the Progress of Chemistry*, with a Bibliography, 1882 to 1886, pamphlets of 25 to 50 pp.

New York Academy of Sciences, H. CARRINGTON BOLTON: *Catalogue of Chemical Periodicals*, pp. 57. (Presenting, chiefly, the chemical portion of Bolton's "Catalogue of Scientific and Technical Periodicals," 1665-1882, pp. 773,—Smithsonian Institution).

Department of Agriculture, Washington, D. C.: *Bulletins on Foods and Adulterations*, 1887, Parts I. II. III.

New York State Dairy Commissioner's Report. Second Annual, 1886. 8 vo., pp. 424. Albany, N. Y.

Massachusetts State Board of Health Reports. Fifth Annual, 1884; Supplement of Seventh Annual, 1886. [For the chemistry of foods.]

PERIODICALS.

American Chemical Journal. The Johns Hopkins University, Baltimore, Md. The volume, issued in six numbers within about a year, furnishes 450 to 500 pages, 8 vo., \$3.00 Vol. 10 begins in Jan., 1888.

[Devoted mainly to reports of researches, of real importance, by American chemists, giving only at intervals some brief reviews of the progress of chemistry in certain directions. A repository of investigations of distinct value, rather than a general medium of chemical science.]

Journal of the Chemical Society. London (Burlington House, Piccadilly, W.) In monthly numbers, furnishing (1) *an annual volume of Abstracts* of the chemical literature of the world in 1,100 to 1,500 pages; (2) *an annual volume of Transactions*, giving contributions of original value in research, in 800 or 900 pages; and (3) a little volume of about 150 pages of *proceedings*, containing an account of papers and discussions in the meetings of the society. With a rich index of subjects and a separate index of authors, making over 100 pages of index matter annually. 30s. sterling a year, post paid. The 54th vol. will be completed in 1888, two annual volumes have been given since 1876, the set dating from 1849, when it began as a quarterly.

[The larger yearly volumes of this journal, the abstracts, furnish a continuous reference library of chemistry, pure and applied, by far the most complete in our language, a library of permanent and increasing value. The abstracts began in 1872. They are presented in the following named divisions: General and Physical Chemistry, Inorganic Chemistry, Mineralogical Chemistry, Organic Chemistry, Physiological Chemistry, Chemistry of Vegetable Physiology and Agriculture, Analytical Chemistry, Technical Chemistry. All the periodicals of chemistry and its applications are laid under contribution, the German journals being most numerous in representation, the English and the French next in extent, and the Italian and other languages not being neglected. The abstracts are carefully made by a corps of competent chemists, and are good working summaries.]

The Chemical News. London (Boy Court, Ludgate Hill, E. C.) Issued every week, and furnishing, each year, two volumes of about 350 4to., two-column pages. £1 sterling, annually, post paid. In the 55th volume.

[A general medium of chemical science, with articles original and selected, correspondence, and a department of notices of papers in periodical literature at large,

these notices not reaching the proportions of abstracts or summaries. An admirable periodical for reading when freshly received, and of good secondary value as a series in the reference library.]

HISTORY AND POLITICAL SCIENCE.

PROF. RICHARD HUDSON, ANN ARBOR, MICH.

Keith Johnston's *Historical Atlas* is excellent and inexpensive. Those wishing a larger historical atlas should not stop short of the great German Atlas, by Droysen.

The Epitome of History, by Carl Ploetz, translated by Tillinghast, is a convenient summary of the leading events of history, with their dates.

For English history alone the same is done in the Handbook of English Political History, by Acland and Ransome. There is no better brief history of England than the History of England by Ransome, published this year. Somewhat larger is Green's Short History of England, one of the most widely circulated historical books ever published. With these books may be read the Social History of England, in which Mrs. Creighton gives within the limits of a primer an excellent account of the social development of the English people. The introduction to English History by Gardiner and Mullinger contains an able sketch of English history and an excellent historical bibliography. For the constitutional history of England down to Henry VII., Stubbs' great work has been popularized in the Constitutional Essays, edited by Wakeman and Hassall, a book no teacher of English History can afford to be without. Hallam's History of England covers the next period, and where Hallam leaves off May's Constitutional History of England, from 1760 to 1860 begins. Bagehot's English Constitution is still the best work on the subject. The books of the Epoch Series should be mentioned, especially the Early Plantagenets by Stubbs, the Age of Elizabeth by Creighton, the Puritan Revolution by Gardiner, and the Thirty Years' War by the same author.

Myers' Outlines of Mediæval and Modern History will give such a general knowledge of political history as one ought to have before reading Guizot's History of Civilization, one of the most stimu-

lating books ever written. The Holy Roman Empire by Bryce, the History of Germany by Lewis, and Masson's Abridgment of Guizot's History of France are all good books. Lodge's Modern Europe contains an excellent account of the History of Europe since the Reformation. Mueller's History of Recent Times is an admirable history of Europe from 1815 to 1878.

The best history of our own country in a single volume is that by Johnston, whose American Politics is also a useful book. For the colonial period Lodge's Short History of the English Colonies in America in a single volume may be supplemented by such larger works as Bancroft's History of the United States, Palfrey's History of New England, and Doyle's The English in America. Parkman's Montcalm and Wolfe gives a most entertaining account of the decisive struggle between England and France for the possession of North America. Schouler's History of the United States, three volumes of which have appeared, embracing the period from 1783 to 1831, is perhaps to be preferred if one can only have a single work on the history of the United States since the Revolution. The American Statesmen series ought to be in every school library. The volumes on Hamilton, Jefferson, Jackson and Clay (the last in two volumes), might perhaps be selected by those who have not time to read all.

*A WORKING LIBRARY FOR A TEACHER OF THE
FRENCH LANGUAGE.*

BY PROF. P. R. DE PONT, ANN ARBOR, MICH.

The following list of books is suggested on the firm belief that the best method to teach a living language is the "practical one", i. e., a method which will exercise the mental powers of the pupils.

In speaking of a "practical method", I do not wish to advocate the "natural method." While the latter may be of service in special cases, I do not consider it adapted to the work in our high schools and colleges where time is one of the most important elements.

The practical method is, in my opinion, based upon a thorough knowledge of the grammar, accompanied with translations from English into French, and original compositions either entirely writ-

ten or partially oral. Judicious exercises in conversational composition ought to be introduced whenever it is practicable. The first works I would suggest are:

Eugène Fasnacht. Progressive French Course, in three parts, which to my mind, is the best grammatical work I am acquainted with. Published by Macmillan.

Eugène Buckingham. A very good work, published by Henry Holt & Co.

Hennequin. French Verbs. The most practical book for studying the irregular verbs.

Harrison. Syntax, a most thorough and exhaustive work on French syntax.

A. Cauvet, La Prononciation française. The best exposition of that subject. It is in French and must be imported.

In regard to Dictionaries, there are several well known, but I think that the most serviceable is *Gasc*. Let me here protest most emphatically against all sorts of cheap pocket dictionaries; they are a drawback to any good work. The only exception I would make is in favor of *Bellows*. The only drawback to it is its very fine print, otherwise I consider it equal to *Gasc*'s, and it has over the usual construction of dictionaries the great advantage that both the French and the English are on the same page, the French on the upper, and the English on the lower half.

A teacher, or even an advanced student, must have works of reference in the very language to which he is giving his attention; I would therefore recommend:

Girault-Duvivier. La grammaire des grammaires, in 2 vols.

Littré-Beaujean. Dictionary; an abridgment of the large edition of

Littré. [Of course if the teacher can afford, as I hope he can, to purchase the latter, he ought to do so.]

To the foregoing I would add:

Chardenal. French Exercises; is, perhaps, the most satisfactory book on French Idioms, and the most likely to give the best information.

Brachet. Grammaire historique, for the study of the transition from Latin to French.

Brachet. Dictionnaire etymologique, which completes the grammar.

[Both these works are translated.]

J. Planche. Vocabulaire des latinismes de la langue française.

Ch. Gidel. *Histoire de la littérature française, de la renaissance jusqu'à la fin du 18ème siècle.*

I would suggest further to improve the library,
Laveaux. Dictionnaire des difficultés de la langue française.

Litrè. Histoire de la langue française.

H. Cocheris. Origine et formation de la langue française.

H. Cocheris. Histoire de la grammaire.

P. Albert. All his works on French Literature, about 6 volumes.

Villemain. Littérature au Moyen age; Littérature au 18ème siècle.

Although class readers are not expected to figure in this list, I venture to suggest the trial, at least of

Contes et Nouvelles. By Madame *L. Alliot*, published by *H. Holt*.

This book may be exceedingly useful in the class-room as a drill book; I think it well adapted to every beginning class in High Schools and Colleges.

LaFaye, Dictionnaire des synonymes.

Lesainte. Pronunciation française; a very complete book on the subject.

And if the teacher wants to carry his studies back to the period of the *Chansons de Geste*,

P. Granier de Cassagnac. Histoire des origines de la langue française.

This writer takes an entirely different view from the one generally accepted; he asserts that Latin, French, Italian and Spanish were sister tongues. But the reasons and evidences he brings forth are such as to be of great value to the student.

A. Firmin Didot. Observations sur l'orthographe française.

A very valuable help in the study of the "spelling reforms" in the French language. These two books are published by Didot.

Burguy. Grammaire de la langue d'Oïl.

H. D'Arbois de Jubainville, La délinéation latine en Gaule à l'époque Mérovingienne. Published by Dumoulin.

Gaston Paris. Du rôle de l'accent latin.

Bartsch. Chrestomachie.

Myer. Anciens textes.

The teacher will have now to form his library of authors; in this respect he will follow his own judgment; as to the editions that of "Les Grands Écrivains de la France" is the very best, but its high price places it beyond the reach of an ordinary purse.

For all purposes the Hachette series are very good, as are also the publications of P. Delalain and Charpentier.

In regard to periodicals, I could not too strongly urge:

La Revue Des Deux Mondes; and among the lesser ones to be imported.

La Revue Littéraire, a semi-monthly.

Le Courrier Littéraire, a monthly.

Le Français, published in Boston by Jean de Pfeiffer or Carl Schoenhof.

The above is expected to meet all the most pressing wants of a teacher, but he ought to consult all catalogues, reviews, and add to his library constantly. For studying purposes, the cheap editions of "*La Bibliotheque Nationale*" are quite serviceable..

INTERCHANGE.

Communications upon any educational topic may be addressed to G. R. CUTTING, LAKE FOREST, ILLINOIS.

COMPETITIVE ATHLETICS IN SECONDARY SCHOOLS.

DAVID H. COCHRAN, PRESIDENT OF COLLEGIATE AND POLYTECHNIC INSTITUTE, BROOKLYN, N. Y.

I regard Competitive Athletics as one of the greatest evils with which secondary schools and colleges now have to contend. A few of the points I make against them are:

1. They impede general physical culture by diverting interest to the few who represent the school in the boat crews, the base ball nines, and foot ball elevens.
2. They are injurious to health and shorten life, as is shown by the vital statistics of the Athletes of the English universities.
3. They stimulate the most brutal instincts and elevate the animal over the moral and intellectual,

4. Their tendencies are dangerous and demoralizing in that they cultivate a false standard of excellence and a low ideal of life, as is illustrated in the fact that the best known and most admired men in our most prominent institutions of learning at this moment are not the best and purest products of moral and intellectual culture, the best writers, linguists, mathematicians, but they are the best ball pitchers, catchers, the strongest brutes of the rush line, the fleetest and most agile half backs, the best oarsmen. The men who are the most admired, petted and envied by their fellow students in some of our great institutions of learning would be utterly unknown were moral and intellectual power the test of excellence. This influence penetrates to the secondary preparatory schools and the pupils therein determine their choice of a college by their relative standing in athletics rather than from scholarship and character results.

5. These games are cruel and so undeniably dangerous that sporting men claim that prize fighting is less so. I clip from the *New York Evening Post* the following, written by Mr. Morse the Boston correspondent of the *New York Clipper*:

"One needed but to have been present at the Princeton-Harvard foot ball game Saturday week to have seen that the sport, even under the new rules, is as dangerous as ever. Where the captain of one team is so injured that the effects of the shock may last for life, and where members on both sides are so battered that they can scarcely stand at the close of the game, it is very pretty to talk about the benefits of foot ball. It was but a few years ago when another player, Phillips, was kicked in the head and suffered contusion of the brain, and came very near drawing his last breath. The Amherst College team has been completely crippled by injuries to its players, while the Williams eleven have suffered much from injuries on the field. Saturday week the Wesleyans received the roughest treatment they have received this season in the game with Yale. No one can deny, in the face of these facts, that a player goes into a game almost carrying his life in his hands. Harvard won Saturday week by sheer physical superiority. Its men battered away at the Princeton rush line until the latter's players were too feeble to stand the onslaught. The orange and black were overmatched physically. In the first part of the game Princeton showed the greater agility and skill and did the best tackling and rushing. Foot ball, did I say? Harvard didn't kick the ball once during the game. Princeton did and gained by it every time. Harvard depended upon brute strength and won by sheer physical superiority, despite the absence of Holden and Wood, two of the best men in the team."

6. They are destructive to scholarship, in that they divert attention from study and require an enormous expenditure of time in the

practice requisite to enable the clubs representing the schools, to compete successfully with their rivals. The time of the large number of students who usually witness these games is also wasted.

7. They are breeding a race of gamblers and so-called fast men, as is shown by the newspaper reports of the betting at any of our collegiate games and of the scenes in the drinking saloons after these games are finished.

But I have already written more than I intended. I must close by saying that evil and only evil comes from competitive athletics. Not one benefit is claimed that cannot be obtained without their aid.

An attempt to crush out this evil in some of our colleges would doubtless be very unpopular and displeasing to students; but I do not think any one who has witnessed the results of these sports in ruined health, crippled limbs, hands unsightly and rendered useless for many activities of life by enlarged joints and stiffened claw fingers, can hesitate as to the line of duty. No one who has marked the rapid deterioration of students of the highest promise which as a rule follows the athletic craze can doubt that it is time to check this greatest evil of our schools.

WM. G. ANDERSON, PRESIDENT BROOKLYN (N. Y.) NORMAL SCHOOL
FOR PHYSICAL TRAINING.

It is not quite plain to me why the line should be drawn at competitive athletics and gymnastics or physical work, and not at competitive mental work. Nearly every college offers prizes or scholarships for the best essays, orations, and theses, and gives medals to incite excellence in any special branch requiring brain work; yet many professors who favor the prize system which causes great mental competition are opposed to competition in athletics, because of the harm that results from over-exertion and from attendant evils, betting, loss of time, dissipation, etc. In proportion to the young men engaged in mental and physical competition there are more serious failures, break-downs, and insane asylum applicants among the former than the latter. More students leave school and college because of ill health due to hard study, than of bodily weakness superinduced by athletics. That harm has resulted from both mental and physical competition cannot be denied, but at present the greater amount of damage is done to the thinkers.

Nearly every educator in history has advocated rest for the mind and work for the body at intervals during the day, and that the fore-

most educators of to-day are of a like opinion is substantiated by the fact that quite a million dollars have been spent by our colleges and preparatory schools for buildings devoted to physical training alone. This very fact as an argument has weight.

To my certain knowledge there are college professors opposed to athletics, or who base their opposition to athletics, because their introduction will take money they want for their own departments. I know there are cases where college professors have advanced opinions which show that they have not given thought to both sides of the subject.

The literature in favor of athletics is meagre and statistics are few ; but those who have had dealings with athletes, and whose opinions are based on experience, agree that for general good behavior and health of college men the gymnasium is needed. By the active training needed to achieve success in any event on the field, there is a channel for the overflow of the "animal spirits" of college students, and on this account athletics do away with hazing and rioting that were so common at one time, but are now falling into "innocuous desuetude."

I have had charge of this work at Yale and Amherst colleges, and I have seen very little harm from athletics. More than one rake has been turned from his loose methods and has succeeded in making a man of himself by taking the care of his body necessary to enable him to succeed in a contest. Dissipation and success in athletics do not go hand in hand. Proper training requires that the laws of health be rigidly observed.

Again, it is not uncommon for the champion in foot-ball, base-ball or rowing to be an honor-man, and it is a rule, that many of the men who are successful on the field rank well as students. In the institution I represent, my best athletes are the honor-men this year. Many of the world's most brilliant men have won distinction as athletes.

The Greeks were a wonderfully intellectual nation. Their views pertaining to philosophy and government, their skill as masters of the fine arts, we not only respect but copy. Yet as an athletic nation they as far out-ranked as in respects mentioned.

I believe in competitive athletics. I do not think they can exist unless competitive, and I have yet to see more disastrous results from this source than from mental competition.

WM. GALLAGHER, PRINCIPAL OF WILLISTON SEMINARY, EASTHAMPTON,
MASS.

My observation and experience at Easthampton lead me to conclude that for us the benefits far exceed the evils of athletic contests as carried on between educational institutions.

We are so situated that games enough to cover the season can be arranged with schools and colleges within such distances that there need be no interference with recitations.

The dangers are many, but they can be met by regulation and restriction better than by an attempt at repression, which would start a new crop of dangers and give none of the benefits that arise from the present management.

The crying evil of the competitive plan is that our secondary schools are too ready to ape the worst features of the inter-collegiate contests, and I am convinced that in them, as at present conducted, the idea of beating somebody is so prominent, and the determination to secure victory by any means, fair or foul, is so firmly settled that nobility and manliness of character are often sacrificed, open and generous rivalry, which might develop high qualities and stimulate a healthy interest in sport and in the care of the body, is decidedly at a discount, and that the feverish desire to excel leads to such undue exercises of the system that the very object for which gymnasiums and sports are established, not only is not attained, but is defeated by the harm wrought by the excessive strain.

PRINCIPAL HENRY L. BOLTWOOD, EVANSTON (ILL.) HIGH SCHOOL.

I take it for granted that every wise teacher knows that a love of play is a part of boy nature ; and that this love of play can be utilized so that a boy may work off his superfluous animal energy in vigorous exercise at proper times and in proper ways, instead of saving it for school and class room.

I have been in charge of academies and high schools for more than thirty years, and I believe that athletics should be encouraged and regulated. They should be encouraged for the sake of bookish boys who are stronger in brain than in body, and who, not without some reason, associate athletics with low scholarship, bad company, irregular attendance, coarseness, betting, ill temper and profanity. They should be regulated for the sake of boys who always need regulation in everything, whose tendency is to hasty speech, ill tem-

per, and excess in everything which they like ; and who, for the sake of sport, will keep any sort of company or break almost any rule of school or of decent behavior. A regular athletic association, with its officers and rules, with its "Field Day" exercises, can be regulated to some extent by the teacher—to a larger extent by the general tone of the school. Without it, the boys who take naturally to athletics mix with men or boys outside the school who are of a lower type and who cannot be influenced or controlled by the teacher.

In large schools a healthy competition can be kept up inside the school ; class against class, for instance. Where this is not possible, contests between neighboring schools are not amiss, if they are wisely regulated, so that they shall not come too often or in school working time, or at unreasonable distances, or with any great expense. A teacher can make every such contest an occasion for emphatic lessons in conduct, and do much to educate his boys to despise any and all unfair conduct, to avoid profanity and betting, and to play like gentlemen. I have often accompanied my boys to their match games, and if they do well or ill, I am as free to comment before the school upon their conduct when at play as I should be in respect to their lessons or their conduct about the school grounds. I think that my well-known interest in their athletics gives me more hold upon my boys when I insist that they ought to be as much interested in keeping a "clean score" and a "high average" on my books as on the books of the base-ball nine.

COMMUNICATIONS.

VIRGIL OR CICERO : WHICH SHOULD PRECEDE ?

To the Editor of 'THE ACADEMY':

I would examine this question very briefly. Here are the arguments for Virgil: (a) he is easier, (b) the transition prose—poetry—prose is more interesting, (c) the metrical study makes quantitative pronunciation easier, (d) Cicero can be read in a shorter time after Virgil, and less Cicero is required for college than Virgil, (e) the subject matter of Virgil is more attractive to the student at a time when he is liable to drop his Latin.

For Cicero: (a) the normal Latin is found in the prose, hence the student should be well drilled in prose syntax before reading poetry, (b) the parallel study of prose composition is aided much by Cicero; Virgilian syntax does not furnish a sufficient drill in the subjunctive and does harm in many ways; (c) the appreciation of poetry calls for a more mature mind than prose; (d) if Cicero is read in the proper spirit with proper regard for Roman antiquities he will be interesting; (e) Virgil is so much more easy after Cicero that more can be read, and little time being given for syntax, much attention can be given to his literary and poetic beauties; (f) the colleges usually begin with a prose author, after Cicero, hence the transition poetry, prose is more interesting; (g) the prose composition of the last year is so far advanced that poetical usages do not mislead the student, and the grammatical study of the prose composition supplements the deficiency of the Virgilian study; (h) the Greek constructions, etc., of Virgil will be understood as abnormal after Cicero; in the third year, or after Caesar, the student knows so little that he is apt to regard them as normal.

On the whole after trying both methods several times, I have found it more profitable to let Cicero precede.

One more point and I am done. The name of this poet according to Conington and Kennedy is P. Vergilius Maro, of which the English is Virgil.

WILLIAM A. MERRILL.

College Hill, Ohio.

To the Editor of THE ACADEMY:

In the list of books for teachers of German given you by Prof. Thomas, I miss a work on synonyms and would suggest J. A Eberhard's *Synonymisches Handwörterbuch* costing about \$4.00, I believe. I also miss a handy and rather cheap German-German dictionary and recommend P. F. L. Hoffman's *Wörterbuch der deutschen Sprache*, 3d edition, costing \$1.50, or Windesjklde's *deutsches Wörterbuch*, which contains at the same time the more common loan-words (*Fremdwörter*) of the German language, cost \$3.00. Many German teachers in our country would also be glad to know of a good commentary to the German poems and prose selections not met with in the best readers. Such a book is: *Ein Führer durchs Lesebuch* by Friedrich Polack, cost \$1.80 unbound. It is also necessary that a German teacher, in case of doubt, should know where to appeal for

an authoritative settlement of the question, and therefore I would suggest, that he be a subscriber to the *Zeitschrift für den deutschen Unterricht*, edited by Dr. Otto Lyon, and Dr. R. Hildebrand. The *Sprechzimmer* of the journal gives attention to such matters.

These suggestions are submitted with all modesty and the assurance that only a long experience encouraged me to make the same.

S. A. STAEGER.

Polytechnic Institute, Brooklyn, May 3, 1888.

* * * At the recent meeting of the High School Workers in Northern Illinois, I was appointed chairman of a committee to arrange and recommend a course of work in English for the high schools of the association.

I should like to hear from the readers of the ACADEMY on the questions of what authors the English course should include; how much time should be given to the study; how much composition and rhetoric work there should be; whether the English may wisely be made a fourth lesson, as it is in many schools. All information, courses of study, suggestions and even questions will be very gladly received and considered by the committee. In return we shall be glad to furnish a copy of the report, which will be made to the Association at its meeting next year. Truly yours,

W. H. RAY.

High School, Hyde Park, Ill., April 16, 1888.

NOTES.

THE ACADEMY is mailed promptly on the first of the month. Subscribers should inform us if it is not received within two days of the time when it ordinarily reaches them.

We have seen in several educational journals a statement of the number of persons from different states who attended the meeting of the National Educational Association at Chicago, last summer. In some of these journals we find the most astonishing conclusions drawn as to the interest in education manifested by different states. If it could be shown that the enrollment was made up exclusively of

teachers, these conclusions might not be considered altogether absurd. Such, however, was not the case. Those in Chicago, who were in position to know, say that the great bulk of the attendance from Iowa, Kansas, Nebraska and other western states, was made up of visitors in no way connected with schools, who availed themselves of the low rates given to visit Chicago, but who did not appear in any of the educational meetings. To a considerable extent this was doubtless true of the membership from the eastern states, though perhaps not to the same extent as in the case of states west of Chicago. Many people from the east will visit San Francisco next summer, and, since it is impossible to obtain the benefit of excursion rates without joining the association, the membership will be correspondingly large, but it would be in the highest degree absurd to claim that any large number of teachers in the east will attend the solely on educational grounds, or that the bulk of those who attend is necessarily made up of those specially interested in education. We see no objection to a little innocent boasting over the large attendance at these meetings, but any person who proposes to draw inferences from this attendance as to the educational interest in any part of the country is a very proper subject for ridicule.

This being our last opportunity before the beginning of the next school year we wish to call the attention of principals to the action of the Faculty of Cornell University last February in regard to the acceptance of Regents' pass cards. After long consideration and consultation, it seemed apparent that the acceptance of single pass cards led unmistakably to undesirable results. It was therefore determined that Regents' pass cards in separate subjects will not be received in lieu of examinations in those subjects unless presented in addition to the Regents' academic or college entrance diploma. This action seems to us a decided step in advance in the right direction.

The faculty also adopted early during the past year a rule to the effect that "Certificates and Diplomas issued by the Regents of the University of the State of New York, shall be accepted in place of the examinations in Latin, Greek, and Grecian and Roman History, and, *upon recommendation of the departments concerned*, in German and French also."

We understand that exception has been taken by some of our New England friends to the inference which we suggested might be drawn from the geographical distribution of the essays on Science in Secondary Schools which received special mention at the hands of the committee last month, and it has been suggested to us that the peculiarity in the geographical distribution which we mention arose not from a lack of interest in Science Teaching in New England but from a native modesty inherent in New England character, a sort of bashfulness about appearing in print which is not noticeable, it is claimed, outside of certain favored localities on the Atlantic slope. It will be remembered that we very carefully guarded our inferences from the facts, but apropos of this same modesty, this lack of eagerness to appear in print, we would remark that the proportion of essays which failed to receive any notice from the committee was greater from New England than from any other section of the country.

Under Bibliography of Physics, in the May ACADEMY, we failed to give due credit to Prof. H. S. Carhart, who kindly prepared it for THE ACADEMY.

BOOKS RECEIVED.

Introduction to Psychological Theory. By Borden P. Bowne. New York: Harper and Brothers. 1887.

Prof. Bowne keeps well within the limits prescribed by his title. His book is an introduction and he does not go out of his way to discuss anything but the common facts of consciousness. In many respects his work differs widely from the common psychology. It opens with a discussion of the subject of the mental life, the self. Without a subject sensation is impossible. At this point the author deals some hard blows at the materialistic theories which seek to explain the subject as a development from a combination of sensations.

In successive chapters the author next discusses sensation, the first reaction of the mind against external action, and "the Mechanism of Reproduction," the facts of which, he concludes, admit of no mechanical construction.

We come next to "the Thought Factor." Our sensations furnish the ground of a second form of mental reaction which consists in the interpretation of these according to the ideas of reason. In this connection the categories are discussed.

Following are chapters on the feelings, the will, and consciousness.

After considering these factors of the mental life separately, in part II. the author treats of them in combination, discussing in successive chapters, Perception, the Forms of Reproduction, and the Thought Process.

As already indicated Prof. Bowne classifies the intellectual life under two divisions, 1st, the sensibility which furnishes the raw material, and 2d, the process by which the mind works over this material into the forms of the understanding. Of the latter he remarks: "The thought process presents two stages, the spontaneous or automatic and the reflective and volitional. In the former state the laws and categories of thought are implicitly present as principles of our constitution; in the latter they are explicit as formal rules of mental procedure."

Perception is not a simple activity incapable of analysis. Will, thought, even reproduction, are present.

"Essentially perception is an application of the categories to the raw material of sensation. When two persons converse no thoughts leave the mind of one and enter bodily into the mind of the other. By an entirely mysterious world-order the speaker is enabled to produce a series of sensations in the hearer which are totally unlike thought, but which by virtue of the same mysterious world-order act as a series of incitements upon the hearer so that he constructs in his own consciousness the corresponding thought. The wisest teacher can do no more than avail himself of the system of incitements which the world-order provides, and then trust to the student's mind to react against incitement with growing thought and interest." Page 254.

Such is the process by which we construct the universe in thought; our knowledge of things is but a reaction of the mind against external action. The mind classifies its sensations and finally objectifies them under the categories of thought. These objectified representations are for us the external world. This view does not deny that the external world corresponds to our conceptions, but affirms that to perceive the external world we must construct it in thought.

In the discussion of the categories and the doctrine of judgments the author likewise controverts many views that are generally accepted.

Prof. Bowne's style is clear and direct. Only occasionally does his impatience at the pretensions of the physiological psychologists betray him into sarcastic expressions which detract from the dignity of style which he elsewhere maintains.

Essentials of Trigonometry. By Webster Wells, Professor of Mathematics in the Massachusetts Institute of Technology. Boston and New York: Leach, Sherrill & Sanborn.

The latest issue in Professor Wells' Mathematical series contains much excellent work; there is manifest a constant care to guard the pupil against a too general application of specific formula and to make clear the ground of universal statement. The more practical parts of the work are admirably treated, and no essential point is left obscure.

Yet the book is a disappointment. Perhaps it may be a query: "What are the *essentials* of Trigonometry?" It is quite clear that if Professor Wells' limit be granted, *the essential* is wider than most teachers of this branch have supposed.

We cannot agree that it is essential or even wise to discuss the limited angle and its function, and then go over the same ground with the general angle. Page 12 might better have been page 4, and the particulars placed under the universal. Those who study Trigonometry at least in college, have discussed "Loci of Equations" in Algebra, and for such students the general definition of Trigonometric functions is a very simple matter.

The detailed demonstrations for angles in the four quadrants are by no means essential, and articles 42 to 52 might well be condensed by at least two-thirds, and yet leave article 53 clear and decisive.

When the functions of quadrantal points 0° 90° , etc., are derived and those of 30° and 45° , it is doubtful whether further derivation and tabulation does not confuse rather than aid the scholar; § 55 is certainly not essential.

If the reciprocal and quadrate relation of functions have been established and the complex character of tangent and cotangent functions shown, article 60 is a burden; and 61 has certainly no essential place in a discussion of mere Trigonometry. The discussion, §§ 65-70, are needlessly prolix for essentials; and pages 54 to 66 are pure algebra, not *trigonometry* at all.

In § 116 Professor Wells clearly forgets that students have studied Geometry, and following other texts on Trigonometry, statedly demonstrates what should be the familiar proposition in regard to the square of the side of any triangle in terms of the other sides and a projection.

In §§ 121, 122, the use of cosecant and secant seems needless. A formula already demonstrated and readily made familiar is transformed. A new mental effort is required and with no gain.

$$\frac{a}{b} = \frac{\sin A}{\sin B} \quad (1), \quad a = \frac{b \sin A}{\sin B} \quad (2).$$
 To solve this the student finds $\log. b.$ and $\log. \sin. A$ and adds, and then subtracts $\log. \sin. b.$

As given in the text (2) is changed to $a = b \sin. A \csc B.$ To solve this the pupil finds $\log. \sin. A.$, then as before $\log. \sin. B$ which he subtracts from $10-10$ and then adds to the two $\log.$'s previously taken. There is no gain in computation: there is an added step in reduction.

On a cursory view the spherical Trigonometry seems to approach much more nearly the notion of *Essentials* than the plane. It is not certain however that anything is really gained by the direct derivation of the Napierian Analogies omitting the Gauss Equations.

On the whole, "Essentials of Trigonometry" compares favorably with other text books on the subject, but it does not give what its title and its author's well known ability gave us right to expect; it is not as near to the limit of condensation as some other texts.

A Manual of German Prefixes and Suffixes. By J. S. Blackwell, Ph.D., Professor of Semitic and Modern Languages in the University of Missouri. New York: Henry Holt & Co., 1888.

The processes of word-formation by the use of prefixes and suffixes are perhaps more clearly and fully illustrated by the German than by any other modern language, and the latter, aided by the former, have been the most important means of derivation through the whole history of the growth and development of the language. It is a characteristic feature of the Teutonic languages that suffixes have been used much more extensively than prefixes. The various meanings and forces of these little words are not always lucidly explained, sometimes merely mentioned, in the German grammars that commonly fall into the hands of teachers. Sometime ago Professor Cook of Harvard prepared a short alphabetical table of the principal prefixes and suffixes, mostly from Whitney, covering only four pages, which, in its own way, has been useful.

Professor Blackwell's "Manual," which appears in neat form and contains one hundred and thirty-seven pages, is undoubtedly the only book that has been devoted exclusively to this subject, and for that reason is destined to fill a long-felt want. Its authorities, Grimm, Sanders, Meyer, Eberhard and Heyse, can be detected in its pages, but this will be no discredit to the book, for it is thus only the more reliable. It is designed as a practical aid to the student, and is to be used as a supplement to grammar and dictionary. The old

orthography has been followed. The words are taken up in alphabetical order; under each the several shades of meaning are classified in subdivision, being explicitly explained and illustrated by quotations, taken mainly from classic German sources. For example, the first word, *ab*, and its compounds, *herab* and *hinab*, are discussed under sixteen distinct heads, spreading over nine pages. It is shown that the meaning of *ab* may vary from that of separation to that of completion or accomplishment. One of the happy features is the fact that words which seem to have the same meaning, or the meanings of which are often confused, are brought together in comparison. To illustrate the latter, we quote from the passage where the writer explains the difference between compounds with *ab* and *aus*: "This difference is so strongly felt that compounds with *ab* and *aus* are often in perfect contrast: e. g., he who sets out (*ausgeht*) from a principle holds firmly by everything that follows from it; he who departs (*abgeht*) from a principle abandons it; a servant is gone out (*ausgegangen*), but will return: a servant is gone away (*abgegangen*), and will not return, has quit our service." In another place we find: "What is *ab* from a thing is entirely separate and away from it; what is *los* from a thing is no longer held by that thing, is free, movable, so that it may or can separate itself." A large variety of passages showing these fine distinctions could be selected, but enough have been given.

To sum up then, we would say that Professor Blackwell has succeeded in collecting and putting into convenient shape much valuable information and that, with the exception of a few minor matters and omissions, the treatment is thorough and complete. The book should be in the library of every earnest student of the German language.

Principles and Practice of Morality, or ethical principles discussed and applied. By Ezekiel Gilman Robinson, D. D., LL. D., President of Brown University. Boston, Silver, Rogers & Co.

This treatise has been prepared by President Robinson strictly as a text-book, and is the result of his own experience and needs in the class-room. This object has given the discussion the character of a hand-book for practical use rather than a speculative essay.

In this book ethics is considered as a theory, and as a practice. The theory is divided into science and philosophy. The science of ethics treats of the facts of morals; the philosophy of ethics treats of the principles of morals.

The important points in the subject our author finds in *conscience* and the *ultimate ground of moral obligation*. Conscience is the voice of "the ought." It is the judge of our conduct. It does not decide what is right. That decision is furnished by the whole rational being. But that decision once reached the utterance of conscience is imperative. This faculty our author regards as innate.

The *ultimate standard of moral obligation* he finds "In the immutable moral nature of an infinitely perfect archetypal being." He discrimin-

ates sharply between the *will* and the *nature* of this archetypal being. He says: "The notion that law and its sanctions are dependent on the divine will, and that divine love can at will override and extinguish divine justice is an error that above any other eats into the vitals of the religion of him who holds it."

The question of *free-will* emerges in the midst of the discussion, and the author while emphatically asserting the doctrine that the will is free, yet strongly affirms that "will can never be anything else than the expression of the actually existing self at the moment of volition." It follows that "The highest freedom is the completest subjection to law; the freest beings are morally the most necessitated to do right; perfect moral freedom is identical with moral necessity; the absolute freedom of an infinite supreme will is one with the inexorable necessities of an infinite and consequently unchangeable nature." (p. 33). It is difficult to see how this is essentially different from the doctrine of necessity held by John Stuart Mill and his school. One author indeed makes vigorous statements against determinism and necessitarianism, and denies the old argument that an omnipotent and omniscient creator is the responsible cause of all that results, however remotely, from his actions. He, however, seems not quite to justify himself in thinking that he is not on their ground.

The practical part of the treatise is beyond criticism other than that of regret that it is not more extended.

The book throughout is outspoken, straight forward, and in the highest degree stimulating. The students of Brown University have abundant reason for congratulation that Dr. Robinson is their preceptor.

The Prelude; or Growth of the Poet's Mind. An Autobiographical Poem. By William Wordsworth. With notes by A. J. George, A. M., Acting Professor of English Literature in Boston University; Instructor in English Literature in the Newton High School. Boston: D. C. Heath & Co., Publishers, 1888.

How to Teach Number. An outline of the method embodied in Wentworth and Reed's First Steps in Number, with specimen pages and full description of this and the other books in Wentworth's Mathematical Series. Ginn and Co., Publishers, Boston, New York and Chicago.

The New Practical Arithmetic. By Waite A. Schoemaker and Isabel Lawrence of the State Normal School, St. Cloud, Minn. Under the direction of D. L. Kiehle, A. M., Superintendent of Public Instruction, Minnesota. New York: D. Appleton and Company, 1888.

Manual of Home-Made Apparatus, with special reference to the teaching of Physiology and Physics in lower grades, devised and constructed by John F. Woodhull, teacher of Natural Science, in the State Normal School, New Paltz, N. Y.

Practical Lessons in the Use of English; For Primary and Grammar Schools. By Mary F. Hyde, Teacher of composition in the State Normal School, Albany, N. Y. Boston: D. C. Heath and Company, 1887.

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DEVOTED TO THE INTERESTS OF HIGH SCHOOLS ACADEMIES AND
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*SCIENCE IN SECONDARY SCHOOLS.**

G. V. YONCE, LUTHERVILLE SEMINARY, MD.

By the limitations imposed upon this article, all discussion as to the desirability of teaching the sciences at all is precluded, for the reason that it is taken for granted that the sciences have been given their place in the course of study already marked out. The proper balance between the subjects of English, the ordinary branches, the languages, mathematics and the natural sciences is supposed to be already adjusted and provided for in the curriculum adopted by the schools. The double question before us is, (*a*) What results may be expected from teaching the sciences? and (*b*) By what methods of instruction are these results to be obtained?

I.—RESULTS SOUGHT.

In considering the results to be attained in incorporating the sciences of physics and chemistry in the curriculum of our schools for secondary instruction, we must first note the two classes into which the pupils of such schools are naturally divided.

* This paper was submitted in the competition for THE ACADEMY prize last March, and received honorable mention from the judges together with the suggestion that it be published.

First, there are those whose education, or more properly speaking, whose academic instruction will end with their attendance upon the secondary schools. The best we can hope for this class of pupils is that they may become imbued with a spirit of research or, at least, of inquiry, with reference to the phenomena of nature in its physical and chemical relations; and that they may be led to enquire the "why" of this and that familiar fact or change, which is constantly presenting itself in the daily walk of every avocation.

But, secondly, there is always present that more hopeful and inspiring class of pupils, who are preparing for places in the colleges and universities for higher instruction, and, indeed, they may be developed from the first class. They are looking forward to some particular profession or special study, and if such is the case, and their future work is at all allied to the sciences, it is of infinite importance that our instruction be of such an exact and drilling nature as to give them that foundation upon which to build their future work, as can only be obtained by careful instruction in the elementary principles.

Now our aim, it is clear, must be modified by these two considerations. We must guard against such a character of instruction as will over-burden, or perhaps over-stimulate the first class, and will yet embody sufficient scientific formulae and order to meet the demands of this more exacting second class of pupils. They can not be separated. They are in one body and must be taught together, and, as we above note, the future specialist may be developed by our instruction from among those who are, at present, only taking the sciences because "they are required."

It is only another of the many problems before the professional teacher which he must conscientiously labor to solve and which he must keep before him in all consideration of his aims and methods in teaching the sciences.

Keeping this thought before us, we are prepared to view the especial results which we hope to reach by an endeavor:

I.—To awaken interest in Natural Phenomena. The student has regarded grammar and kindred subjects as *the study of a book*. We shall get his interest by showing him that these are studies about *things*, and very common things they are—the behavior and construction of all material. This interest is further developed when the relationship between the science in hand, and those of Geology, Astronomy, Mechanical Engineering, Medicine, Biology, &c., is

properly explained. And then, we have a more general aim—*viz.*, in thus quickening the interest and use of the eye in the observation of common facts and occurrences, to initiate a habit which will reach to all future study in which the pupil may engage.

II.—To direct this newly aroused interest towards the value of *exact* knowledge. We thus get the pupil to see that nothing superficial avails. We shall succeed in making him ashamed of all sham and so-called "general knowledge." Thus our aim is again widened, for this result, if attained, will reach out to all other studies. By the study of the sciences, which always demand exactness, the student will come to see the value of this habit in all other work, academic and practical. He will be taught to despise all half-learned, half-understood, formal statement. In this light, we hope, through the sciences, to regenerate the student intellectually.

III.—To dispel the many popular misapprehensions of common scientific truth and appliances. The lamentable ignorance about common things is not peculiar to the young; we are all familiar with the discouragingly slow progress of society in general in its ability to explain the most common things in nature. The teacher can direct the interest and love of exactness aimed at above, into such channels as will teach the pupil the real explanation of these most familiar and ordinary phenomena of nature.

IV.—To show that the uniform structure of matter, as is attested by physical and chemical experiment, is the result of the universal obedience to law. We can show that matter has its existence only as it does obey law; that all depends on law; that without it, all is chaos. As a result, the pupil will see the value of law; he will become more obedient to law. This principle has its ethical application—Nature is used as a discipline to virtue. Emerson had great regard for this and taught it in a spirit to be emulated by all teachers of science. Prof. Remsen, in an introductory lecture delivered before a class at the Johns Hopkins university, of which the writer was a member, said that "he believed we would be more truthful, value truth more for its own sake, just in proportion to our devotion to pure chemistry."

The study of the sciences of physics and chemistry is all the time a homily on Truth. Thus the study of these sciences may be so conducted as to mold character. The teacher will make a more valuable citizen out of his pupil because of his study of the exact sciences. We could have no higher aim than this,—the double con-

servation of intellect and heart to the best advantage of the universal brotherhood.

V.—So to conduct the study that, while the general student is not discouraged by the weight and number of facts cited, the bright and awakened intellect here sees an ample field for special research. The result here sought is double, and refers to the presence of the two classes of pupils before noted. We should encourage and stimulate enquiry on the part of the pupil who has no special inclination towards the sciences; and at the same time, perhaps inspire some one of the brightest of our class with a desire to devote his study and after life to the further development of the many problems awaiting solution in the departments of physics and chemistry, and, indeed, in the whole domain of science.

VI.—With especial reference to those scholars who may subsequently go up to the higher schools, we should aim to make specially prominent the fundamental principles, the great underlying laws of science, satisfying ourselves by frequent recurrence and drill that they are well in hand—the sure possession of the pupil. It was our own experience, in coming up from college to laboratory work in the university, that our principal need was precisely within the line here suggested.

II.—METHODS TO BE USED.

I.—As a pre-requisite to success in attaining the results herein set forth, it is necessary that the teacher have a thorough acquaintance with the principles of the science in hand, and that he be enthusiastic and of quick preception and ready ingenuity. These requirements are, it is true, general; they are a necessity in successfully teaching any subject. We feel, however, that especial stress must be laid upon these elements as requisite in the method of teaching science. Least of all may success be expected in teaching the sciences, when the teacher is a mere *dilettante* occupant of the chair. When his heart is not in his work, all the finer principles of science and their relation to the great outlying field to which they are applicable, will be totally missed. The teacher will find that his class feels this. They will take color from him and his style and spirit. Then, truly, there is no hope that all our fine thinking as to the great results which should follow even elementary work in physics and chemistry, will come to any but the poorest and most unsatisfactory ending. Let us insist then on thorough familiarity, quickened en-

thusiasm and readiness in seizing upon familiar illustration as characteristics of our method, however else it may be modified.

II.—Teach thoroughly the theory of the molecular and atomic structure of matter. Show that this is not a mere dead formula, but that it is incorporated in all understanding of physical and chemical law. Show how the laws of gravitation, heat, light, &c., and chemical “affinity,” can only be thoroughly understood in the light of the atomic molecular theory. Circles may be drawn for molecules, and circles within these for atoms. Show that the formula, H_2SO_4 , for example, is not a mere short name for sulphuric acid, but that it means and shows at once, that there are seven atoms in the molecules and what these atoms are. Explain that the chemical behavior (for example, the oxidising powers) of sulphuric acid, is only understood and interpreted by its atomic constituency. Herein is *the* point. Lay this ground work well, and future haziness, even darkness, will be dispelled.

III.—Make frequent use of free and practical illustration. Make use of the “kitchen chemistry;” tea pot (steam, condensation, &c.); vinegar barrel; spoons used in mustard, eggs, &c.; the thermometer; the ice in the rain barrel; barometer; white washing; wheel-barrow; scissors, &c., &c., thus showing the physics and chemistry of common things in an attractive and clear light. I write questions on these things; nothing so awakens interest and attention.

Be ready to illustrate in a moment, and in a perfectly satisfactory way, some physical or chemical phenomena as stated in the textbook or lecture.

As an illustration, scrape off of the wall just by you the white wash, catching it upon a piece of paper; pour into a test tube; treat with HCl ; pass the gas through lime water, thus showing that you have liberated CO_2 . The white wash has become $CaCO_3$, the same in composition as it was in the quarry before burned into lime (CaO). A single thing like this may so enrapture a class or pupil as to make devotees henceforth to your science.

IV.—Lead up gradually to the more difficult laws of the science, such as “specific gravity” in physics, which you approach through “gravity” and “weight”; or “pitch,” to which you come by the way of “vibration” and “sound.” Keep in *your own mind* all the while what is coming, and thus you will lead the student unconsciously into the more intricate problem, and he will find himself already equipped for its solution.

If you wish to show the test for HNO_3 by Fe SO_4 and $\text{H}_2 \text{SO}_4$ (the ring test), prelude it by an explanation of the affinity of Fe for O, and the circumstances under which nitric oxide is formed, showing how the change is likely to occur. The pupil must know what that dark ring is going to be, and that it *must* be, before the experiment is shown. This principle in fact applies to all experiment. The pupil must know what to look for and how it is going to behave, otherwise your experiment is a mere trick, a startling exhibition, and your whole point is missed.

V.—In all experiment, either performed by the teacher or pupil, the “wherefore” of every piece in the apparatus must be explained; the characteristics and composition of each reagent must be understood and the whole thing carried out to complete demonstration.

For instance; you are on salt-forming:— $\text{Ca CO}_3 + 2 \text{HCl} = \text{Ca Cl}_2 + \text{CO}_2 + \text{H}_2 \text{O}$. Now, of course you pass some of the escaping gas through lime water in order to show CO_2 . You may at the same time, breathe into some lime water, showing that the same effect is produced,—*ergo*, you breathe out CO_2 . But now comes the particular point we make. Do not stop by saying, “the salt Ca Cl_2 is there held in the solution.” At once evaporate a portion—show the crystals of Ca Cl_2 and that they are *not* the same thing with which you started. By such work as this, your pupils must reflect the results you have been aiming to develop.

VI.—Let only thorough work pass. This, if adhered to in all your teaching, will have the effect elsewhere noted, and we shall have fewer superficial students in all our departments. The whole school will find itself indebted to the department of science. Your aim to make thorough scholars can only be realized by thoroughness in all your own and their work.

PRACTICAL SCHEME. I.—CHEMISTRY.

As the teacher may find no text-book which exactly conforms to his idea in the order of its arrangement or method of treatment, he should make out a program, somewhat like the following, which can be carried out in a session of nine school months.

I.—Let the student follow the text-book in the study of O, H, N; keeping air and water especially prominent. Make practical application, on the subjects of the relation of Animal and Vegetable life; difference between compound and mixture as illustrated by O and N in the atmosphere, ventilation, &c. Make each gas, and perform

the ordinary experiments. Perform none, however, except in direct relation to the subject in hand; let them be few, but clear.

II.—Review the ground now passed over.

III.—Go on with text book up to metals, using leading experiments, always after the text has been learned and freely explained. (See IV, V, under part II).

IV.—Take up the metals, commencing with Na, and ending with Au. Depend principally on the text and your illustration and elaboration of the same. Few experiments should be used, merely such as show leading characteristics of each metal in the free state. Especial emphasis need not be paid to the salts of the metals during this stage of the work.

V.—*Now take up SALT MAKING, its theory and illustration. Introduce in order the principal salts of each metal, giving their characteristics and uses.

VI.—† (a) Tests for Acids, Br. I; &c.

(b) Tests for Bases.

Make a scheme on blackboard and have the class copy the same in note books. Illustrate each test by experiment. Let the class understand that it is by a systematic application of these tests that all analysis is performed:

VII.—Simple Qualitative Analysis: first, have the students repeat tests made under VI. See note.

Simple separations:—A mixture of Ferrous Chloride and Potassium Chloride may be given. Treat a portion in solution with H_2S ; with $(NH_4)_2S$; filter; treat filtrate with flame test for K; Test portion for Fe; Test portion for Cl. Throw precipitate from $(NH_4)_2S$ into solution. Test. Proceed with such examples as long as your time permits.

VIII.—The whole subject may now be reviewed. A better method is to have several short theses submitted by each member of the class upon assigned topics.

* Here "Organic Chemistry" may be given as far as practicable, if it has not been treated under Carbon and its compounds. At most, you can only make prominent, Bread-making, Fermentation, (Alcoholic and Acetic), Soap-making and such practical subjects.

† If the teacher is so situated that he can allow laboratory practice by pupils, now is the time to begin to let them handle the apparatus and work out the tests. It has not been necessary hitherto.

If a second year is allowed, the course in Qualitative Analysis may be further pursued, commencing with Thorpe & Muir (Appleton's) and then passing to Quantitative Analysis, using Fresenius with Roscoe & Schorlemmer for reference.

II. PHYSICS.

An elaborate scheme is not necessary, as nearly all the recent books are arranged with greater uniformity and practical adaptability than the text books on chemistry.

We would say in brief:—

- | | |
|---|--|
| I.—Take up subjects in this order,
illustrating by the most simple
experiments. | { a.—Properties of matter.
b.—Molecular theory.
c.—Attraction & repulsion.
d.—Gravitation, weight,
specific gravity. |
|---|--|

II.—Review, questioning very closely.

III.—Continue the general order of subjects as treated in the text book, followed by further illustration and explanation. Invite questions on all practical subjects.

IV.—Close the subject by topical recitations first allowing each member to select his own topic, then spend some time having the recitation upon topics which you have specially assigned.

V.—Instead of so called examinations, have short theses written upon assigned topics.

We have thus outlined our ideas of what may be fairly expected by the teacher of science in our schools for secondary instruction. We have also indicated the methods by which we believe these results may be attained, and it is the hope of the writer that this paper may prove helpful to those of his profession who are aiming to overreach the mere "bread and butter" idea of their work and who set for themselves a standard in the pursuit of which they will be of incalculable benefit to the searchers after truth who fall under their tuition.

*NOTES ON TECHNICAL EDUCATION.**

BY DR. ROBERT H. THURSTON.

THE REASON AND PURPOSE OF TECHNICAL EDUCATION.

The prosperity of the people of any country is dependent, primarily, upon their own industry and integrity, skill and enterprise, persistence and "pluck," and, to a considerable extent, upon the natural advantages and resources of the country itself, as determined by the character of soil and climate, and upon the location with respect to home and foreign markets and sources of supply of raw material; but the prosperity of a nation is the greater, other things being equal, as the value of the labor of the working classes is increased, and the value of such labor is the greater as the products of industry are more generally the result of trained skill, and cultivated taste and talent, employed in the so-called skilled industries. The cultivation and diversification of skilled industries, of the mechanical arts, and of art-industries, is evidently mainly to be relied upon to promote the highest possible prosperity of a people. Trade education, schools of the mechanic arts and of engineering, the cultivation of industrial art, the promotion of the fine arts, in such manner as to give to the worker

*It is now just three years since the Sibley College of Mechanic Arts of Cornell University, was reconstructed by the Trustees of that progressive institution and made a school of mechanical engineering. The University is working under a charter founded upon the Act of Congress giving the State of New York about a million acres of land for the purpose of promoting the useful arts by the establishment of a college having that purpose as its principal object. This charter has been in operation now twenty years, and the endowment secured by sale of lands located by Ezra Cornell, and carefully marketed by him and by the Trustees of the University, who assumed his obligations, and aided by the gift in cash from Mr. Cornell, of a half million dollars, has gradually become capable of providing instruction for a thousand university students. Of these about one-half are engaged in studies of a technical and professional character; while the others are pursuing academic courses. Sibley College, beginning in a very humble way, has grown to a large institution in itself, and now contains about one-fourth of all the students in the University. It began as a school of the mechanic arts, and, in the earlier years of its existence, had few students and very few graduates. The reorganization in 1885, by the addition of a department of mechanical engineering and the reducing of all

the intelligence and skill needed to enable him to do good work, and to provide new and broadening fields of labor, free from the fatal competition that causes each laborer to become the enemy of his neighbor, are the resources upon which only, we may rely for the relief of the pressure characterizing modern civilization. Those states, and those nations, will evidently be the most successful and prosperous in which the aim of legislation, and of the educational system, is to secure the effective training of the laborer, and to the worker in the higher fields of industry the most thorough training for his work.

The accumulation of wealth can result only from our material progress, and it is only by the accumulation of wealth that the world may secure the blessings of intellectual, or even of moral advancement, the comforts of life and healthful luxuries. But the accumulation of wealth comes of the two lines of progress; the cheapening of all essential and destructible elements of life and civilization, and the steady and efficient application of the powers of the body, and of the intellect, of man to the production of permanent and essential wealth in the forms most useful to the mass of mankind. The highest duties of the state and the citizen are thus to be fulfilled by providing the opportunity to every man to give his sons and his daughters the means of making their heads and their hands of maximum service to themselves and to their neighbors, to gain means of directing the forces of nature, and the power of utilizing their own

its related departments to a single systematic whole, under a single head, and with very considerable accessions of apparatus and tools, led to very sudden and somewhat embarrassing growth, while making it, as it stands to-day, the largest school of mechanical engineering in the United States.

The headship of the college was entrusted to Dr. R. H. Thurston, who was made "Director," and to whom the details of organization and the planning of the courses of instruction was confided, subject to the approval of the authorities of the University. The study of the problem thus presented, and the experience gained in the endeavor to carry into effect the general views and plans of the Trustees, as originally outlined to the Director by them, through the President of the University, has led to the formulation of somewhat definite principles and plans, and these have been, from time to time, under the original instructions, laid before the governing body in a series of reports, not intended for publication. They contain much material nevertheless, that may, we think, be placed before our readers with propriety and with profit, if we may judge by the matter already furnished us by their author, who has agreed to abstract for *THE ACADEMY* such portions as may appear to have special interest, and to be, at the same time, available for public use.

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natural ability and skill with highest efficiency. Education must be directed in such manner as to give, in the least possible time and in the most effective way, at least a preparation for the duties of daily life, while, at the same time, so far as is practicable without interference with the more imperative work, training the scholar to become a good citizen, and to enjoy the intellectual side of existence.

It is in recognition of this view of our duties that we are beginning to see manual training, and a trade-school system, incorporated into the common school system of education of every civilized country, and technical and professional schools and colleges taking their place beside the older institutions of learning. From this time on, he who would accomplish most in either of the departments of skilled industry or in either of the branches of the great profession of engineering, must combine scientific attainments with experimental knowledge of facts and phenomena, mechanical ability, and good judgment and taste ripened by large experience in business and familiarity with the ways of the world. It is only when manual training and trade-schools are found in every town, technical schools in every city and colleges of science and art in every state, so united in a system that shall insure to every one the privilege of learning the scientific basis of any art, and of laboring in every or any branch of industry, as to make certain a recompense for all the zeal, intelligence, skill and industry that the worker may exhibit, that the professions will attain their grandest development, science and art find closest and most fruitful union, and that the citizen may enjoy to the fullest extent all that he may rightfully demand in his pursuit of all that life and liberty can offer him and the most perfect happiness that can come to man. The highest skill, the most reliable labor and the most admirable artistic talent are to be obtained only by systematic cultivation, and the new features of modern education are those which are directed to the object above outlined.

A complete scheme of education aiming at the development of the powers of the mass of the people and the securing of the greatest possible prosperity of the nation must include the manual-training school for youth, the trade-school for those proposing to fit themselves for successfully pursuing industrial pursuits, and the technical and engineering schools in which the scientific development of the constructive professions is aimed at. In the first, young people are to be taught the use of tools, in the second the arts of carpentry, weaving, blacksmithing, stone cutting, and other industrial arts, and in the

third, the greatest of all arts, that of contriving methods of turning the powers and processes of nature to the uses of man, and of inventing and designing all the mechanism, apparatus and structures needed in the work. The highest department of instruction, and that in which the greatest of all the institutions included in the system will take part, is the thoroughly scientific training and education of students with a view to preparing them to take advantage of all new discoveries and inventions, to thus keep themselves in the front rank among those who do the great work of the profession; it will also, while giving instruction to the ablest and best students, supply to the technical schools and colleges of the country, well taught and talented instructors, able investigators and skillful administrators, and will aid by scientific research the development of every industry, and furnish a nucleus about which may gather the great men of the nation capable of instructing not only the youth who may come to their lecture-rooms and laboratories, but the legislators and executive officers of the government whenever they may be called upon to deal with any one of the innumerable questions affecting the national weal through its industries. This is the position which it is desired that Cornell University shall take, through her technical departments.

Experience has shown that systematically planned and carefully conducted schools of science and of the arts are vastly more efficient in the education and training of young people than any workshop or mill can possibly be. In them, every operation may be thoroughly taught and the learner may be familiarized with every detail without loss of time or strength on the part of either teacher or pupil. It is such a system, incorporated into the educational scheme of every European country that has given them, notably in the case of France and Germany, such rapid growth in productive power and prosperity and which has, for a time threatened other nations with such serious competition. It is now recognized as an obvious principle that in order that a nation may prosper under existing conditions of competition and cheap transportation of materials and products, the people must be so much better educated in the principles, and trained in the practice, of the arts in which they compete with other nations that their marketable productions may be introduced into the markets of the world, competing both in quality and price with all that may be there encountered, and yet the producers may receive better remuneration for the day's work by their ability to make a day's work more productive through the exhibition of greater skill, or the invention of

better machinery, and by the exhibition of finer taste and better knowledge of art.

The modern systems of technical education are directed towards these vitally important ends, and it is perfectly evident to every intelligent citizen that the prosperity of the nation is, for the future, to be dependent mainly upon the success and rapidity with which this system is introduced throughout the land. Where there is to-day one such school as has been described, a hundred are already needed. It is difficult to realize the rate at which foreign nations are advancing in this direction, and how rapidly our own country is being distanced. It will demand the most earnest thought and the most energetic action on the part of those entrusted with the work of developing our educational system to prevent a very serious, if not disastrous, competition from abroad, within, probably, the next generation. It is fortunate that the change has progressed in our own country even so far as it now has, and that its continued progress is assured.

But science and technical studies will never, and should never, displace the older departments of education. As the one is needed for the material welfare of the country, the other is essential to its intellectual prosperity and to the cultivation of the real scholarly spirit and to the growth of the æsthetic side of life, of all that makes the possession of wealth really desirable.

When the new system shall have become fully developed, it may be hoped and fully expected that it will be common, if not customary, among those who pursue science, and study the profession, engaged in construction, to secure, first, the broad and liberal culture of the older schools before entering upon their purely professional studies. It is this feature which Cornell University is especially well prepared to introduce and to encourage. Here the line of work will lead into and through the general courses and on into the professional schools. Knowledge, discipline, training in all the humanities, may, and should, precede the final special preparation for the special work chosen as the means of doing most for the world and of acquiring fortune.

European nations have been for many years, for a century at least, steadily, systematically, and intelligently, carrying out the policy above outlined, and the only way in which to compete with them is evidently to adopt a similar policy, with even greater care, and with, if possible, more effective methods. Technical and trade education have for so many years been a part of the French and German system of aiding manufactures that we may expect it to require many

years to equal, much more to distance them in the race. The effect has long since been felt in the importation of skilled artisans and engineers from those countries, to do work demanding peculiar expertness coming of such scientific training. We have taken up our work in this direction none too early. It is a matter of congratulation that Cornell University was planned with a view to the effective promotion of the needed work.

METHODS—SUBJECTIVE AND OBJECTIVE.

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"Method" seems to be the educational hobby of the times. Educational journals are full of methods in grammar, in geography—in every branch. Books are written on methods of teaching in general and every subject in particular.

There is danger that, in the strength of the current, principles will be lost sight of. In fact, signs of narrowness and empiricism are already on the increase. A pupil in a training school recently told me that she had learned thirteen methods of teaching numbers up to ten! Of course any method is better than none. But not every method will yield equal results in the same time, or at the same cost, as economists would say. Not every method conforms to the law of parsimony. It is desirable then to keep clearly in mind the principles on which methods should be built.

A method of teaching a branch may be developed as responsive to the condition, physiological and psychological, of the pupil. Such methods adapt the material of the subject studied to the needs of the pupil, without regard to the logical arrangement of the subject itself. They may or may not coincide with that arrangement. For "that which is last in actual attainment is [often] first in logical importance." Such methods may be called subjective.

On the other hand, the method of teaching a branch may be derived from the orderly development of the subject of study. Such a method of presentation I call objective. It may be a scientific development, in which case it may coincide more or less closely with a subjective method.

Finally, a method may be only a "pretty scheme," adopted because it is complete, or symmetrical, or used by other teachers. Then it is empirical.

In other words: In the formation of a subjective method we must ask: first, What are the facts of mental development? and second, How may the matter in hand be adapted to these facts? In preparing an objective method, we must ask: first, What is the logical order of this branch of study? and second, From what fundamental principles must we start to enable the pupil to see the relations of the parts of this subject of study, and to grasp it as a whole?

The subjective method coincides with mental growth. It is analytic and inductive. The objective method is synthetic and deductive. The former reasons from experience to principles, "from the concrete to the abstract;" the latter from principles to experience, "from the abstract to the concrete."

Subjective methods assume no *développement*. They are, therefore, the ones to be used with children. Hence the young teacher I mentioned as having learned thirteen ways of teaching primary arithmetic was unfortunate. There are not thirteen modes of mental development. The New Education is right, then, in maintaining that kindergartens and object teaching properly form the beginnings of education.

But with pupils of high schools and academies, one might sometimes advantageously employ objective methods. I find it refreshing in my own work to forget for a while the pursuit of "facts, observations, inferences," which form the gospel of the "New Education," and, starting my pupils with some fundamental principle to which they all agree, or which is the result of previous induction, lead them through its application to what *must be* the facts of experience.

While it is true that the prime object of education is to discipline the mind, the secondary object, that of learning, ought not be crowded out altogether. We study Latin and Chemistry not only for discipline, but to learn Latin and Chemistry. It is conceivable that for this secondary purpose, at least, objective methods may be more prolific of results than subjective. I doubt whether in some subjects—Ethics, for example—the inductive method can be employed at all successfully.

To speak of teaching Latin by the "philological," or by the "linguistic," method, is simply to say that prominence is given to one

department of the subject to the neglect, perhaps, of other lines of work and development. And since every branch has in it possibilities of educating along more than one line, it is a violation of the law of economy to attempt to develop only one of these possibilities.

In the history of the progress of intellect, we find inductive and deductive methods of investigation almost alternating in different generations. I think some one has said that the inductions of one generation form major premises for the deductions of the next. It is true, also, that the prevailing methods of teaching in any period will, in the long run, conform to the prevailing mode of thought. Subjective or objective methods will eventually be used according as the mode of thought of the age is inductive or deductive. Naturally enough, the generation that investigates by one method is very likely to regard the other as barren. And it is a curious fact, as it seems to me, that the apostles of the "New Education" make just this mistake. The tendency seems to be to throw all objective methods aside.

The so-called revolution in educational methods is, then, only the attempt, under the natural pressure of public opinion, to adjust methods of teaching in all cases to the present predominating mode of thought and investigation—the inductive. But the "revolution" is nothing new. Its occurrence is almost periodic in the history of education. Its recurrence can be prevented and the methods of another generation anticipated, not by throwing away all the old in favor of the new, but rather, while retaining what is best in the old, by adopting whatever is good in the new.

THE HARVARD ADMISSION EXAMINATION IN ENGLISH.

BY L. B. R. BRIGGS, HARVARD UNIVERSITY.

The Harvard admission examination in English is widely discussed and little understood. It is worth while, therefore, to show what this examination is and what sort of work the candidates do in it.

Every candidate is expected to write off-hand a respectable little theme, and to correct specimens of bad English. Subjects for composition are drawn from a few English classics, which the association of New England colleges prescribes; specimens of bad English are taken from the examination books of earlier years, from students' themes, from newspapers, and from contemporary literature.

A scheme of examination must meet two tests: it must be rational on paper, and must be rationally administered. Whether the English examination at Harvard meets the first of these tests is still an open question. Substitutes for it and modifications of it are suggested on every hand. One teacher would try the candidate's knowledge of English by all his examination books, considered, whatever their subjects, as English Composition. This is an alluring plan, ideal in its excellence, and, alas, ideal in its impracticability. The books must be read under the lash: it is only by straining every nerve that the examiners can finish their work in time. If all the books of each candidate should be collected and should be examined as English Composition by some competent person, the delay would be unbearable. Moreover, such an examination would not touch English Literature; and in this "practical" age it is well to teach a boy that classics exist. The proposal to substitute for the present test an examination in English History, and to mark each book twice, once for History and once for English, is open to like objections: it would double the time needed for handling the books, and it would require no knowledge of literature. It would introduce, besides, the danger of fixing a boy's study of composition on what is known as "the historical style," which is often conventional, cumbrous, and unlovely. Some teachers would prescribe Mr. Stopford Brooke's *Primer of*

English Literature; but this plan, too, is objectionable. It would force the candidate to study not literature, but facts (and opinions) about literature—names of authors whose works he had never seen; dates, which, without a first-hand acquaintance with the books they represent, stare blankly at the mind, and at which the mind too often stares blankly in return. Other teachers would do away with the correction of bad English, and would fasten a boy's attention on good English only: yet up to this time no one has devised a better half-hour's test of acuteness and accuracy than the Bad English paper; and until the English of Freshmen becomes less slovenly than it now is—or until accuracy becomes a lost art—some test is essential. Others still, would have no English requirement. They would suffer boys to come to college without a sense of literary form, and to "dump" their knowledge promiscuously into their examination books. I am no admirer of the present requirement; I live in hope of something better: but I am as yet unable to see in any of the proposed substitutes a scheme at once superior and practicable. Besides, the present plan has passed, for a time at least, beyond the control of Harvard examiners and of Harvard University; it must stand for several years more whether we like it or not.

The second test that an examination is bound to meet is the test of rational administration: it is not enough that the scheme of requirements is defensible; the examiner must ask none but reasonable questions, and must mark the answers by a reasonable standard. Nobody who has inspected examination papers and the records of admission to colleges pretends that he can judge the severity of an examination by the printed scheme alone. Harvard College and other colleges print the same English requirement, but set different questions and mark by different standards. Acquaintance with the method of marking is clearly necessary to the understanding of an examination. I have in mind two questions from the Greek admission papers of minor colleges: one asked who Zeus was; the other called for an account of the uses of the genitive case. Either may have demanded enormous intelligence in the candidate, and may have demanded none whatever; neither, I must add, showed much in the examiner.

In such discussion of the English examination as I have heard, nothing has impressed me more than the ignorance of teachers about the real nature of the test. The college is quite as responsible for this ignorance as the teachers are, since it has not done much to

enlighten them ; but the teachers are responsible for irresponsibility, if for nothing more, when they publicly express such views as a thorough acquaintance with the subject would prove untenable.

The candidate, as I have said, is required to write a short composition on one of some half-dozen subjects from one or more of the prescribed English classics. It is possible, no doubt, to pick out from a collection of Harvard admission papers a few subjects unintelligently chosen ; it is possible to pick out many that demand either a close acquaintance with the books from which they come or a touch of originality in the boy who treats them well : but it is, I believe, impossible to find a paper that does not offer at least one subject of which no conscientious boy can complain. If one or two subjects are hard, candidates (and teachers) should remember that among the three hundred applicants of a single year there are a few whom individuality or literary instinct guides to the maturer subjects, and that these few may be worth a hundred of the others. Nevertheless the multitude has carried the day ; the Commission of New England Colleges* has practically tabooed the more advanced subjects ; and the paper for last June—as printed below—contains nothing that is abstruse, and little that even in appearance is minutely exacting : —

ENGLISH COMPOSITION. I.

Write a composition—with special attention to clearness of arrangement, accuracy of expression, and quality rather than quantity of matter—on one of the following subjects :—

1. The Story of Viola.
2. Viola's Errand to Olivia.
3. How Malvolio was Tricked.
4. Sir Andrew Aguecheek's Challenge and What Came of it.
5. Mr. Darcy's Courtship.

Whatever the subjects offered, it is safe to say that no candidate ever failed through ignorance of the details of a prescribed book. Doubtless many candidates have believed, and asserted, that they failed for this reason ; possibly their teachers have believed it, and have spread the report : but, as a matter of fact, the examiner's first question to himself is always, "Can the boy write English ?" If he can, he may pass the examination, though, with Julius Cæsar for his subject, he declares that Mark Antony loved Cæsar less and Rome more. In June, 1887, two or three boys passed who acknowledged

*"The Commission of Colleges in New England on Admission Examinations."

that they had never read the book from which the subjects were drawn, and who substituted subjects of their own choice from the other prescribed books. They would not have passed if their own English had not been good and their correction of bad English intelligent. When a boy takes his own subject, it is right to demand a better theme of him than of others; and since he may have come to the examination primed with a composition not his own, it is right to demand of him unusual skill in the correction of bad English—the only work that is beyond question his. This year a candidate passed with a disgracefully ignorant little theme, called “The Story of Viola,” but really a feeble fiction of his own. He knew almost nothing of Viola except that she wore boy’s clothes. He was saved because his work with the “Specimens” was good, and the English of his composition bearable. Besides, he needed clemency in order to be admitted to college, and a condition in English would have turned the scale against him. Here is his theme:—

“THE STORY OF VIOLA.”

“As it happened, Viola went out in a ship in company with her brother. They had been gone some time and were far out at sea, when a storm arose and wrecked the ship. During the disaster Viola got separated from her brother, and each was obliged to look after himself. They succeeded in saving themselves, but each one thought that the other had been drown.

“Some while afterwards, Viola happened to wander to the town in which her brother at that time was staying. She saw him and recognized him, and so went and put on a boy’s apparel and engaged herself into a family as a messenger boy to run on all errands that should come up. She kept her position for some time, continually making trouble for the people around her, and playing jokes on the lovers in the play.

“Finally she gave up and told her brother of her identity, which he would not believe at first, but finally accepted her as his sister with great joy.”

I was ashamed to pass this theme, and am ashamed to print it as part of a successful examination; but I wish to show that Harvard does not insist upon that minute and diversified literary knowledge which strains a boy’s head and baffles a teacher’s imparting skill.

Leniently as the books are judged now, it might be well, as someone has suggested, to supplement the test of a theme written off-hand,

by that of one written at school and certified by the teacher as a fair specimen of the boy's work. The plan resembles that already adopted for the examination in Experimental Physics. The certified theme, if presented by a trustworthy teacher, might now and then offset in the examiner's judgment, the effect of nervous excitement or examination fright. So far Harvard might move toward the plan of admission by certificate, but no farther.

The master of a famous preparatory school makes two complaints which deserve special consideration: first, that his worst pupils always pass in English; and secondly, that his best pupils fail to get "credit" or "honors." Good and bad are lumped, he declares, so that he can rouse neither ambition nor fear.

It is easy, I think, to see why his poorer scholars pass. He has boys of more than average intelligence; he pays more attention to the English requirement than most teachers are as yet willing to do; he uses good English himself, whereas many teachers do not; and, above all, he gives admirable instruction in Greek and Latin. Thus his pupils have peculiar advantages, and even the weakest of them do as well at the English examination as better scholars from many other schools.

Some masters push English Composition into a corner, and a dark corner at that; others are guilty of sentences like "When *will* we be able to *really* commence work?" others, not so inaccurate, prefer oratorical or dressy English to the style of a straightforward gentleman, and vitiate a boy's writing with a vulgarity that it takes years to counteract; others still—to borrow Professor Hill's expression—praise the English that is "free from all faults except that of having no merits;" and many suffer their pupils to turn Greek and Latin into that lazy, mongrel dialect, "translation English."

The Greek and Latin requirements tell for so much more than the English requirements that a boy spends at least three school hours in producing hybrid translation to one in producing English. Consequently, at the English examination he writes, "*One of the strangers having been informed of the youth's mission, set out to find the sought for uncle of the youth.*" I condition him, but with pity rather than blame; for the teachers, too, are infected with the disease of construing. When a boy writes "*you was*" or "*a little ways*," he may show the influence of an uneducated home—an influence that his teacher is perhaps powerless to offset. What gives a peculiarly melancholy aspect to "*He having been informed, set out to find*

the sought for uncle," is the fact that no illiterate boy could produce it; that it is the direct result of an educational process for which the teacher is beyond escape to blame. In a school where the teaching of Greek and Latin is, as it should be everywhere, the teaching of English also, no boy will have much trouble with the English requirement.

The complaint that boys of marked capacity in English fail to get "credit," is a serious one, and I am unable to meet it satisfactorily. Before this year the requirement for credit was too high. This year the college lowered it slightly; yet, even with an unusually easy paper in "Sentences," it was impossible to give "credit" to more than five books; and not one of the five showed remarkable promise. I print one as a specimen:—

"THE STORY OF VIOLA."

"The story of 'The Twelfth Night,' in which Viola appears, opens with the landing of Viola, with her friend, the captain, upon the shores of Illyria. She is in quest of her brother, Sebastian, whom she has not seen since the time of the ship-wreck, a disaster which separated [sic] them some time ago. She remembers having heard her father speak with the greatest admiration of the duke Orsino, who lives in a city near by, and determines to enter his service as his page.

"Now the duke is at this time violently in love with the Countess Olivia, a beautiful woman, who is in mourning for her brother and has vowed that man shall never look upon her face again. Every advance of the duke is rejected; his entreaties are in vain. When he sees Viola, Orsino at once employs her, thinking her to be a man, and sends her to press his suit with the countess. He sees that Viola is beautiful and thinks that she can more easily obtain an interview with Olivia.

"He is right; Viola not only gains access to the palace, but a private interview with the countess. She tells Olivia of the duke's insatiable love, but all her efforts come to naught; again and again, she tries to soften Olivia's heart, but always with the same result.

"Meanwhile, Olivia, also thinking Viola to be a man, has fallen in love with her, and Viola has grown to love the duke. These three are now entangled in a web from which time alone can extricate them. The duke is in love with the countess, the countess loves Viola, and Viola tells the duke that she will never love wife more than him.

"At the palace of Olivia, lives her cousin, Sir Toby, whom Sir Andrew Aguecheek is visiting. Sir Andrew is wooing the countess and, seeing that she looks with favor upon Viola, sends Viola a challenge for a duel.

"In the mean time Viola's brother, Sebastian, has arrived in the city. In walking about, he happens to enter the court-yard of Olivia's palace. Sebastian looks exactly like his sister, and, when Sir Andrew sees him, he thinks it is Viola and attacks him. Being very skilled in the use of the sword, Sebastian easily overcomes Sir Andrew.

"Olivia, now meeting Sebastian and taking him to be Viola, tells him of her love for him and proposes that they be married. Sebastian, not disliking the looks of the countess, accepts, and the knot is tied.

"Viola now enters with the duke, and brother and sister meet for the first time since the ship-wreck. Everything is quickly explained, and Orsino, remembering Viola's professions of love, marries her.

"Thus happily ends *The Twelfth Night* and the romantic experience of Viola."

This composition has none of a boy's freshness, no marked sign of literary taste, no peculiar vigor. Besides, there are taints of translation in it, such as "*being very skilled*," and "*taking him to be Viola* * * * *proposes that they be married*." Its English, however, is usually accurate, clear, and unpretending; and the boy, tame as he is, shows undeniable skill in marshalling his facts. He has constructed a clear and well-proportioned summary, has done a solid hour's work, and deserves praise. He makes some bad slips with the "Specimens," but not many; and I give him the coveted "Good." Other boys show more cleverness and more imagination; but their English is slipshod, or grandiose, or miscellaneously exuberant. They may be brilliant writers by and by; but they lack those qualities without which no elementary work earns a high mark.

In three cases of failure to get "credit" complaint has reached the examiners. In two of these cases Professor Hill re-read the compositions and found plague-spots of translation English. Complaint in the third case came to me, nearly two years after the examination. I had then seen the young man's work in his Freshman and Sophomore years. He was interested in literature, and his mind was strong and fertile. At his best he wrote admirably; at other times he was diffuse, undisciplined, and unenglish—fond of tricks that seemed

almost too vicious for his good sense to overcome or his vitality to struggle through. Nor was he even accurate. He wrote "*twilight*," for instance, with all dictionaries at his command and a fortnight for preparation. Such a young man might earn from sixty per cent to one hundred, according to his mood; and nobody could foresee whether he would or would not deserve "honors" in English.

It is almost inevitable that the extremes of marking should lie nearer together in the English examination than in any other. In mathematics and even in translation, total failure is possible; but every boy who thinks himself ready for Harvard College can produce a few English sentences, and correct some of the more glaring errors in the specimens of bad English. A book in mathematics may be perfect, and a book in translation accurate; but no one knows what perfect English is, and scarcely any one keeps clear of conspicuous inaccuracy. Again: the "sentence paper," though easy to do something with, is hard to treat perfectly in the time allowed by the Faculty. These causes narrow the range of marking.

I have tried to show what the English examination is; it remains to consider some characteristics of the examination books.

Spelling is bad, and probably always will be: *loose* for *lose* is so nearly universal that *lose* begins to look wrong; *sentance* prevails; *dissappointed* and *facinating* are not unusual; sporadic cases are *Sir Tobby* [Belch], *Sheassphere* [of Stratford], and *welthey aeris** [Portia of Belmont]. Punctuation is frequently inaccurate—that is to say, unintelligent and misleading. The apostrophe is nearly as often a sign of the plural as of the possessive; the semicolon, if used at all, is a spasmodic ornament rather than a help to the understanding; and—worst of all—the comma does duty for the period, so that even interesting writers run sentence into sentence without the formality of full stop or of capital. To many candidates the principle that punctuation has no excuse for being, except so far as it guides the reader to the writer's meaning, seems never to have occurred. As for paragraphing, I am aware that it is a delicate act: yet that is no reason why some whole essays should be single paragraphs—solid, unindented blocks of conglomerate; or why in others nearly every sentence should make a paragraph by itself, so that a page, except for its untidiness, might be taken from a primer. Here is a composition of the former kind:—

* The reformed spelling of *heiress*.

"Viola, disguised as a boy, was sent by the Duke to see Olivia. Viola was sent with intention that she should try and persuade Olivia to love the Duke. Viola, however, instead of gaining the love of Olivia for the Duke, gained it for herself. At last, even, Olivia wanted to marry Viola, but Viola being a girl was forced to refuse her. It happened that Viola's brother passed there soon after this. Olivia taking him for his sister asked him to marry her, which he, after he was over his surprise, did. Olivia the next time she met Viola, taking her for her brother, was quite indignant because she did not recognise her as her wife. Shortly after this Viola's brother meeting Olivia and Viola together, is overjoyed to meet his sister, whom he thought dead. The Duke then also comes by and recognised Viola. After the Duke hears that Olivia is married he asks Viola to be his wife which she with great pleasure does. The Duke and Olivia therefore instead of becoming man and wife, become brother and sister."

I give two specimens of the minced themes, one narrative and one ethical :—

1. "Mr Darcy was invited by Mr Bingley to make him a visit at his place.

"It happened that, early one morning, Elizabeth Bennet had taken a walk, and on her way had visited the Bingleys.

* "Here she met Mr Darcy, and at first sight took a dislike to him.

"She took cold on account of her walk and was not able to go home for two days; so her sister came and took care of her.

"The sister of Bingley wanted to marry Mr Darcy on account of his money, although she could not consider herself poor.

"It seems that Mr Darcy was struck at the first sight by the handsome face of Elizabeth and Mr Bingley also was not slow to acknowledge that he liked Jane, Elizabeth's sister,

"Soon after the malady was cured, the sisters returned home.

"In a few days Mr Bennet invited Mr Darcy and Bingley to a dinner.

"Here also Mr Darcy showed a desire for Elizabeth's company.

"At this time there was quartered at Longbourn a regiment.

"This was a very pleasing addition to the pleasures of the Bennets, for there was always some entertainment going on, in which they generally took part.

* There is some doubt whether the writer meant to begin a paragraph here.

"A Mr Wickham made his appearance here in order to join the regiment.

"He was very handsome, and could keep up a lively conversation so that he was liked by everyone, especially the Bennets.

"One day Mr Darcy with Mr Bingley were riding through Longbourn when they met the Bennets who were with Mr Wickham. As soon as Wickham saw Darcy he turned colour and passed on. Elizabeth noticed this and related it to her sister and they two had a great amount of gossip over the event.

"The next time Elizabeth met Wickham she enquired of him when he and Mr Darcy had met before.

"He told her a story that threw a dark light on Mr Darcy and made himself out as a very wronged man.

"This was believed by all who heard of it untill Wickham eloped with Lydia Bennet leaving great many debts behind him.

"These Mr Darcy paid and found out where the eloped couple were staying, and reported his find to Mr Bennet's brother.

"This transaction was found out by Elizabeth, who immediately had to admit to her sister that she liked Mr Darcy more than ever.

"This soon grew into love which finally resulted in her marriage."

"MR. DARCY'S COURTSHIP."

2. "In the Courtship of Mr Darcy we see one hand, much for lovers to copy after and desire, while on the other much that they should avoid.

"A warning should be taken from the despicable manner in which Jane is treated by Darcy's sister. It is unfair to say the least.

"Why should a respectable young man be prevented from courting a young lady even if she be not wealthy?.

"The course of true love cannot be put to an end, no matter what is brought to bear upon it.

"If every lover would have the patience and faith of Jane in a man, especially when outward circumstances are very, very dark, we should have less divorce cases to-day in the courts.

"While Darcy is prevented from seeing his object of love no one can be lead to think that he has no thought of her.

"He appears to think of her all the time wishing to see her and to declare his love for her. Perhaps Darcy did not endeavor as much as he was able, to either find or write Jane.

"Some would censure him in this respect, but for my part, when a man is hindered from anything and when he knows that if he does that thing, it will be contrary to the best wishes of his own sister, I have not the courage to blame him.

"A lover should be carefull and not arose the passions of his or her love.

"It is not to be wondered at that Darcy's conduct should seem strange to Jane.

"This walking in the dark is not to be envied by any means.

"In spite of trial and difficulties Jane and Darcy meet again and renew their love.

"Soon Darcy's Courtship ceases for they are united in the happy bond of unity."

The "lukewarm moral atmosphere" of the last essay suggests a serious fault of many examination books, the fancied necessity of infusing morality somewhere. The favored spot is usually the end; and the moral peroration is so common that some teachers, as I fear, must encourage it. A few examples will do:—

1. "Many people can write a pretty frivolous story, but few is the number, of those, who can put into that story lessons that, if a reader learns them, he can follow all through life. This power has been given to Miss Austen."

2. "On the day when these two [Darcy and Elizabeth] were united, two hearts, properly adapted to each other but of different birth were made one, not for a few years nor for life but forever."

3. "Such is her [Viola's] story, and beautifully has the great Shakespeare told it. She leaves us all a wide field for thought and an almost perfect example of what true manhood should be. Character into which right principles have been implanted at its first forming is impressed indelibly. So Viola, beautiful in character, righteous in deed, and pure in heart lived ever nobly and although her appearance was changed yet the heart was the same,

' Like the vase in which roses have once been distilled ;
You may break, you may shatter the vase if you will,
But the scent of the roses will hang round it still. "'

4. "Miss Austen evidently intends to show that even our most powerful feelings of dislike can be overcome in time and that we should not judge that as we now feel we shall always feel

"Everything is liable to change, and we ourselves are not excluded, it is wisely ordained thus, for terrible would be the results were all first impressions permanent."

The last passage recalls the school girls' sentiments in *Elsie Venner*—"that beauty is subject to the accidents of time," and the like. The rest of the same theme, however, is neither oratorical nor flat; so that the work as a whole is far better than that of the following essay, where vicious morality and "fatal facility" blight every line:—

"MR. DARCY'S COURTSHIP."

"What a strange paradox of character Darcy at first seems? You hardly can account for it. It may seem unnatural when first you think of it. But think. Know you not many of your friends whose actions seem to be inconsistent. Aye, look you at your own. Think how often you astonish yourself, as well as those who know you, by your various actions and then look at Darcy.

"Pride and Prejudice—Darcy's character alone would have given the first part of the title of the book. But what is pride? Does it not continually display itself? Does it not *consist* itself in display. How noticeable then when it occurs. Surely pride in itself is no tremendous fault, but its disagreeableness lies in this very characteristic—display.

"But you wonder how this has anything to do with his *courtship*. Aye, in every way. Do you not remember his pride, the very first time you saw him there in the ball-room? how he was above dancing? Do you not remember seeing Bingley go up to him to beg of him to dance? and can you not remember his reply, remarking that Elizabeth was only tolerable? But that same Elizabeth in a few years is mistress of Pemberley. Mark how he only watches the second Miss Bennet, but he is too proud to court openly. Also, by way of remark, I think I remember hearing him speak to Bingley about the Bennets' vulgar relatives. Even his love breaks not through his pride; his Pride and Love go hand in hand, if Pride does not lead the way. But his love is safe, for that love's bitterest enemy, pride, is overthrown by Elizabeth's disdainful rejection. Could you not almost foresee this? Would any one have been a wonderful prophet to have told that he was in love with Elizabeth, nay even that he would propose, (and why should he not for he, through his pride, was confident of acceptance?) that Elizabeth would scornfully refuse, and that his pride would be broken? What

could more surely break one's pride than have a proposal, in assurance given, cast back in one's face, as Darcy's was?

"There was something that made me love Darcy from the beginning. It shone through his pride, through his arrogance, and made me feel that, behind that unpleasant outside, there was a true man. I know not what it was, but it made me feel that I wished I had that man's character without his pride.

"With Elizabeth's refusal his true courtship really begins. Before, he was courting his own pride; now, he courts Miss Elizabeth Bennet. His love, no longer smothered under the wet blanket of his pride burns unhindered; and to have Darcy's unhindered love was to have a most precious, most priceless thing. It was not a mere passionate affection, that lived merely for the pleasure of its existence. It was a love of tender regard, that lived solely for the being to whom it was directed and because of whom it came into existence.

"Can it not be put this way? Darcy had pride. Love crept in. That love grew and grew. That love startled his pride. It was too late for the love to be stifled, it could only be restrained. His pride was broken, and his love unrestrained filled his life. Pride can no more enter that heart of which true Love has full possession."

None but a cynic can fail to sympathize with the writer of this theme for the agony that awaits him in Harvard College, the lashing that he must endure before he finds his true place in that hard-hearted little world. If there is one thing that Harvard College will not tolerate, it is "gush,"—"gush" in general, and moral or oratorical "gush" in particular. I may whisper parenthetically that some young men have gushed unseen, or seen and uncondemned, if they have chosen verse as the outlet of their feelings; that the "Harvard man," constitutionally afraid of making a fool of himself, would rather accept nonsense as poetry than set up himself for a critic of poetry: but in prose detection is certain at Harvard if anywhere. Illiteracy a student will pardon (it is the weakness of a man and a brother, and no drawback to touchdowns or home runs); even immorality he will often overlook: but the blatant moral oratory of a man that he thinks no better than himself cannot be lived down in a four years' course. All this is not as it should be; but I am trying to state things as they are.

As a rival of the moralist, there is the interpreter of character :—

“VIOLA’S ERRAND TO OLIVIA.”

“As there are a great many things which might be said concerning the errand of Viola we can only turn our attention to one of those things.

“The most important thing connected with any action is usually the result. This is what we will consider in the present essay. The result of the message was to arouse in Olivia a most passionate feeling of love for Viola. One might criticize the suddenness of the act and condemn it as hasty and unadvised, but we must consider that where a man has to *think* to decide what he should do a woman *feels*, and when she feels she acts, and if she thinks at all it is after the thing is over,

“That this sudden love did not spring from any weakness of character may be seen from the persistency with which she held the Duke at bay. If she had been weak, the power and pomp, the grandeur of the name, together with the fine personal appearance of the Duke, and the flattery of the love of such a man would long ago have won her. But she was not weak. She was strong and being strong must love strongly when she loved at all; and who, we would ask, could love strongly and not show it.”

One sentence, from a book written some years ago, combines the ethical and the analytic :—

“That Cæsar was ambitious there is not a doubt in my mind, but that he ought to have been killed for his ambition there are a great many.”

Humorists (conscious humorists, I mean) are scarce; but I have gathered a few specimens of their work :—

1. “He [Mr. Darcy] has come at last! They have seen him! What do they think of him? They all without an exception think him ‘just too horrid,’ but any one of them would be willing to take him if they could.”

2. “Sebastian consented; the priest of the house was called; the marriage ceremonies were performed. Sebastian stepped out to see some friends,* when Cæssario, with the Duke, stepped into the palace.”

3. “Now there were several families residing near Mr Bingley’s new home, and there were several mothers who were busily engaged

* I am not sure that the humor is conscious here.

husband hunting for their daughters. One family in particular had a full quota of fair ones who had not yet worn the orange blossom. So this was a dangerous region for two young knights to explore if they expected to retire with unbroken hearts."

4. "After Olivia's departure, she sent a ring claiming it to have been left, but though Olivia understood the action she did not wish to have a woman make love to her (it was not leap-year). The Lord sent her again and this time the lady asked her to marry her then, as a priest was below, but she left."

Queer figurative and half-figurative mixtures are common: Viola "fills her position, flitting about like a ray of sunshine;" Mr. Darcy "could not prevent an attachment for the charming girl from springing up in the seat of his affections, which by the way were not always easily observed;" Mr. Darcy, "having once broken through the ice, finds but little trouble in progressing in the paths of love." Again: "Love was brooding between them [Mr. Darcy and Elizabeth] but not as yet had the fire been burning, and as it seems, the match was lighted at this point."

Mixed figures, however, are so often the produce of a fertile, though unweeded, mind that in a boy of seventeen they are almost encouraging. "We mournfully contemplate the fate of that great poet soul [Burns], a jewel of nature, highly endowed, that perished in its bloom,"—these words were the end of a good theme, and the work, I suspect, of a boy who proved the best writer in his class. Nor am I discouraged by such blunders as, "Mr. Darcy was perfectly nonpulssed;" nor by the occasional use of a degraded phrase, like "don masculine habiliments" (of Viola). I am discouraged by pervading inaccuracy, by incontinent oratory, and by chronic morality.

More than all, I am discouraged by wooden unintelligence. Though the admission books in English are gradually improving, it is true now, as it was true some years ago, that "few are remarkably good, and few extraordinarily bad;" that "a tedious mediocrity is everywhere." Dulness is the substance of scores of themes, and inaccurate dulness at that: there is neither a boy's sprightliness, nor a man's maturity, nor a scholar's refinement, nor yet a reporter's smartness. The average theme seems the work of a rather vulgar youth with his light gone out; and this unilluminated incompetency takes the place of characteristics in about three quarters of the books. To show what I mean, I take the first theme of average

mark that I can lay my hands on, a theme clearly above the passing-line. The subject is "Mr. Darcy's Courtship." The boy does not dream that the story is full of life; to him it is something to go through—like statistics. Accordingly he tabulates it, and appends a moral duller than his tables:—

"MR. DARCY'S COURTSHIP."

"Mr. Darcy, a young man of distinguished birth and great wealth, with that peculiar pride in his character which young men of wealth generally acquire from the adulation paid to them by ignorant people, is surprised at and delighted with the independence and frankness of spirit with which a certain Miss Bennett receives him. This Miss Bennett he first saw at an evening party given by the sisters of a friend of his. He afterwards saw her at the home of his friend where, contrasting the sharp, witty conduct of Miss Bennett towards him with the ignorant adulation of his friend's sisters, he falls in love with her.

"Miss Bennett is so influenced by the insinuations of a renegade-ward of Darcy's father that she despises him. When, by chance, they meet at the country house of Darcy's aunt, Darcy proposes and is rejected by Miss Bennett who flaunts in his face the wrongs charged to him by his father's ward. Darcy is so incensed that he says nothing and leaves. After some consideration, he concludes to explain away these falsehoods and does so to the entire satisfaction of Miss Bennett who now begins to see many noble traits in Darcy and, after a while, falls in love with him.

"Darcy, after he has done many favors for Miss Bennett's family, again proposes to Miss Bennett and is heartily accepted. Darcy, when asked by Miss Bennett why he fell in love with her, admits that it was principally on account of her humbling his spirit of pride and teaching him the pleasure of treating one's supposed inferiors well.

"Darcy finally marries Miss Bennett to the great chagrin of his friend's sisters (the Bingleys) who make great protestations that the match is pleasing to them.

"The moral of all this, I think, is that slavish flattery will never attract the attention either of those who may deserve our praise or of those who do not to any qualities, either of mind or body, which we may possess. While, on the other hand, frankness and independence of spirit will always obtain for us, even among the greatest of men due consideration and respect."

In the treatment of the Bad English paper I see the same decrepitude of the more active powers. The one notion that possesses a boy when he faces the sentences is that something must be changed. His mind saunters up to each sentence, looks at it vacantly, changes the first word that comes half-way to meet him, and moves languidly on. In *Neither she nor Tony entertain any thoughts of marriage*, he changes *nor* to *or*, and leaves the rest; in *If the tariff were taken off of wool, we would be obliged to close our mills*, he touches nothing but *were*, which he changes to *was*; in *It prevents him bending the elbow more than a little ways*, he corrects the second blunder with the genteel substitute, *beyond a certain degree*. Sometimes unintelligence goes farther yet. In *Turning into the square, the post hit him causing him to shy, causing him to shy* is emended to *which made him very shy*. The sentence, *I think the style bad, and that he has a good deal of the old woman in his way of thinking*, passes muster for its English but not for its etiquette. The bad construction is unchanged; but a *good deal of the old woman in his way* becomes *much of his mother's manner*. One might think this change humorous; but I am convinced that it is not. It is as unconscious as a sentence in an admission theme on *The Merchant of Venice*,—"Shylock departed with neither money nor flesh."

It is a mistake, I think, to suppose that any practicable change in the English requirement would do away with the evils that appear in the books. Many of these evils will remain so long as a single prominent teacher in a single large school suffers slipshod English to be used by his pupils or by himself. Preparation in English is a complex matter; and the "English teacher" is but one of a thousand influences that make or mar it every day. The difficulty lies deep, when every subject is taught in English, and when the English of so many learned men is radically bad. As a general thing the school gets out of the teacher all that it pays for: and until schools can afford to pay trained and polished men; to give those men such relief from routine and bread-winning as shall enable them to cultivate themselves; and to demand of them not the raw power of keeping fifty boys in order and hearing five recitations a day, but a spirit at once gentle and manly, and a culture that must reveal itself without pedantry in every recitation, whatever the subject—until this millennium arrives, we shall see in our English examination the results of weary or perfunctory or—worst of all—decorated teaching. Meantime we must thank the teachers of English for their up-hill work.

BIBLIOGRAPHY.

LIBRARIAN R. C. DAVIS, ANN ARBOR.

I. JOURNALS.

The Publishers' Weekly. New York, \$3.20 *per annum*.

Bibliographical, a weekly record of new publications, priced, with brief notes indicating their scope and value—general book news.

The Critic. Weekly, New York, \$3.00.

The Literary World. Fortnightly, Boston, \$2.00.

The Dial. Monthly, Chicago, \$1.50.

These are critical and bibliographical. In *The Dial* the book reviews are more extended, and there are, consequently, fewer of them than in the others.

The Library Journal. Monthly, New York, \$5.00.

This is the organ of *The American Library Association*, and treats of library economy and bibliography, and gives general information in regard to libraries.

Library Notes. Quarterly, Boston, \$1.00.

Devoted to library methods and work; very practical.

ENGLISH JOURNALS.

The Publishers' Circular. Fortnightly, London, 8s.

Identical in scope with our *Publishers' Weekly*.

The Academy. Weekly, London, 17s. 4d., \$4.22.

The Athenaeum. Weekly, London, 17s. 4d., \$4.22.

Critical and bibliographical.

2. BOOKS PURELY BIBLIOGRAPHICAL, OR NEARLY SO.

Allibone, S. Austin: Critical Dictionary of English Literature, and British and American Authors. 3 vols., royal octavo.

Vol. 1, 1854, Childs and Peterson, Phila.

Vols. 2 and 3, 1870-71, J. B. Lippincott & Co., Phila.

The work is sold by the Lippincotts now for \$22.50, in cloth.

The American Catalogue. 1876-1884.

Author and title alphabet, and subject alphabet, in one volume 4to, New York, 1885.

The edition of this work was limited and but few sets remain unsold. These are to be disposed of for \$12.50 in sheets, or for \$15.00 bound in one-half morocco.

The last set of Leyboldt's great work.

The American Catalogue of Books in print and for sale July 1st, 1876, in two parts, was sold in 1886 for \$60.00.

The Annual American Catalogue, 1886, New York, 1887.

In December only twelve copies of this remained unsold. Price \$3.00 in sheets and \$3.50 in one-half leather. This volume was made by photographing, after they had been arranged in one alphabet, the book records of *The Publishers' Weekly* for 1886. This and its successors will be indispensable books in libraries. Orders should go in immediately for the volume for 1887. Price, in advance, in sheets, \$2.50; in one-half leather, \$3.00. Address, *Publishers' Weekly*, Franklin Square, New York.

First Editions of American Authors, compiled and published by Leon and Brother, New York, 1885. \$1.00.

For a knowledge of English books a librarian should possess the following :

Lowndes' Bibliographical Manual of English Literature. New Edition, in eleven parts, or 4 vols., \$8.00. The Bohn Edition.

The work is now sold by George Bell & Sons. The price of the eleven parts, in boards, is £2; of the whole work bound in four vols., one-half morocco, £2, 2s.

The English Catalogue of Books. Annual, Sampson Low, London, 5s., in paper.

This should be regularly taken, and the volumes of previous years obtained, as far as possible.

3. AIDS IN THE USE OF PERIODICALS.

Poole's Index of Periodical Literature. Third edition brought down to January, 1882; Boston, 1882, in leather, about \$17.00.

The Co-operative Index to Periodicals. Quarterly, New York, \$2.00 per year, with *Library Journal*.

A supplement, or second volume of *Poole's Index* will be made from this co-operative index, and published soon. The work is in charge of Mr. Fletcher, librarian of Amherst College. The quarterly issue will continue as heretofore.

4. AIDS IN THE SELECTION OF BOOKS.

Porter, Noah. Books and Reading, 2nd edition 8vo.; New York, 1881.

The best book of its kind.

Perkins, F. B. *The Best Reading.* Last edition, 8vo., 1877; cloth, \$1.75; paper, \$1.25.

Jones, Lynds E. *The Best Reading.* 2nd series.

A priced and classified list of books from the close of the last edition of Mr. Perkins' book, 1887 to the end of 1881. New York, 1882, \$1.00.

The Books of all Time. Compiled by F. Leyboldt and Lynds E. Jones.

Books for the Young. Compiled by Miss C. M. Havins.

These are two little volumes published by Mr. Leyboldt in 1882, and costing, in paper, the former 10c, and the latter, 25c. I recommend them heartily, though I regard the title, Books for all Time, as somewhat of a misnomer. Some books for the present time only, have certainly crept into the list.

Mr. Leyboldt published in 1883 a most useful little book for librarians, *viz.*:

Library Aids. By Samuel S. Green, Librarian of the Free Public Library, Worcester, Mass.

This is a bibliography of library literature of all kinds, classified. The book was distributed gratuitously to members of the American Library Association. When sold it will not exceed 25c in price, I think.

Mr. William E. Foster, of the Providence Public Library, Providence, R. I., during the years 1881-1884, inclusive, published what he called

Monthly Reference Lists.

I should describe them as the bibliography of certain topics of the times. I think that they may still be obtained at a reasonable price. A valuable feature of these Lists is a series of references to the history of presidential administrations. These references have been increased by Mr. Foster, and published separately. They form No. 17 of Economic tracts, under the title, *References to the History of Presidential Administrations*, 1789-1885. By the Putnams for the Society of Political Education, 25c.

The Boston Public Library Catalogues of Classes of Books.

Especially valuable are those for English Prose Fiction (including translations from other languages into English), and History, Biography and Travel. On some accounts the 6th edition of the former, April, 1877, is to be preferred to the later, 7th edition, August, 1885. The cost of these when issued did not exceed 25c. each.

5. LIBRARY ADMINISTRATION.

United States Government Report on Libraries, 1876, Parts 1 and 2. Washington, 1876.

Circulars of Information of the Bureau of Education, No. 1, 1880.

College Libraries as Aids to Instruction.

Two papers by Justin Winsor, Librarian of Harvard University, and Prof. Otis H. Robinson, Librarian of Rochester University.

6. MISCELLANEOUS BOOKS.

Cushing, Wm. Initials and Pseudonyms.

Large, 8vo., New York, 1885, \$5.00. A second series in course of preparation, \$3.00.

Wheatley, H. B. How to Form a Library. London, 1886, 4s. 6d. A volume of the *Book-Lovers' Library*.

Penn, Arthur. (Pseudonym for J. Brander Matthews).

The Home Library. New York, 1883, 12mo., 60c.

A volume of *Appleton's Home Library*.

Sabin, Joseph. A Bibliography of Bibliography or a Handy Book About Books which Relate to Books. 8vo., New York, 1877, \$1.50.

PEDAGOGY.

PRES'T W. H. PAYNE, NASHVILLE, TENN.

Page. Theory and Practice of Teaching.

The great merit of this book is that it sets forth the nature of the teaching office with great beauty and clearness, and at the same time presents powerful motives for making high attainments. Mr. Page's lovable spirit speaks in every page of the book.

Blackie. Self-Culture.

To enter into the real spirit of this book is almost a liberal education, so wholesome and catholic is its doctrine.

Isaac Taylor. Home Education.

This book seems to me to have all the philosophic insight of Richter's *Levana* with many additions in the way of practical wisdom.

Mrs. Martineau. Household Education.

This book exemplifies in the happiest way the art of human training, or perhaps it would be more accurate to say, the art of character building.

Rousseau. Émile.

Viewed piece-meal, this book offends by its contradictions and paradoxes, but regarded as a whole it is full of generous inspiration and persuasive power.

Pestalozzi. Leonard and Gertrude.

This book illustrates in a simple and pleasing way the regenerating power of education, and more particularly the saving influence of a good woman. It exemplifies Pestalozzi's favorite notion, that the salvation of a people rests with the home.

Fitch. Lectures on Teaching.

Mr. Fitch sums up the best current English thought on teaching, and has written a representative book from this point of view.

Mahaffy. Old Greek Education.

This book exhibits in a small compass and in an attractive way the consensus of ancient Greek thought on education.

Church. Trial and Death of Socrates.

This is the Euthyphron, Apology, Crito, and Phædo of Plato, with a critical and appreciative introduction. No more charming book can be added to a teacher's library.

White. Elements of Pedagogy.

The best and most accurate statement we have of the theory of education and teaching.

Gill. Systems of Education.

Were it not for such books as this some new light in education might rediscover the Monitorial System. Such well digested information on the topics it treats can not be found elsewhere.

Calderwood. On Teaching.

Not a book on Method, but a series of short essays on the nature of true teaching.

Hill. True Order of Studies.

This is doubtless the best statement we have of the logical sequence of studies. Incidentally there is much that is valuable on the value of subjects.

Laurie. Life of Comenius.

No teacher can afford to be ignorant of the life and services of this great educational statesman and missionary; and Prof. Laurie's book is the only one which gives us an account worthy of the man.

Rosenkranz. Philosophy of Education.

To be even approachable, a German work on the philosophy of education needs to be translated twice, first into English and then into English common sense. This has been done for Rosenkranz by Miss Brackett and Dr. Harris, and we have a book still not altogether comprehensible, but yet full of wholesome food for thought.

Landon. School Management.

This book permits the American reader to study school management from an English point of view.

[The editor of *The Academy* takes the liberty of adding to this list three books which Prof. Payne's modesty has prevented him from including, but without which the list would be incomplete. Compayré's *History of Pedagogy*, translated and edited by Prof. Payne, is by far the best history of education accessible to English readers. Prof. Payne has also translated Compayré's *Practice Course in Pedagogy*. Of *Contributions to the Science of Education* we need only say that we consider it the soundest and strongest educational work yet produced in this country.]

 ZOÖLOGY.

PROF. V. M. SPALDING AND MR. REIGHARD, ANN ARBOR, MICH.

GENERAL AND FAUNAL.

Text Book of Zoölogy. Claus & Sedgwick. Macmillan.
 Zoölogy. A. S. Packard, Jr. Am. Sci. Series. Henry Holt.
 Guide to Study of Insects. A. S. Packard, Jr. Henry Holt.
 Manual of Vertebrates of Northern U. S. D. S. Jordan. Jansen
 McClury.

LABORATORY GUIDES.

Biology. Huxley & Martin. Macmillan.
 Practical Zoölogy. Marshall & Hurst.
 Methods of Microscopic Anatomy and Embryology. C. O. Whitman.
 Cassino.
 Anatomical Technology. Wilder & Gage. A. S. Barnes & Co.
 Hand-book of Invertebrate Zoölogy. W. K. Books. Cassino.

The Naturalist's Assistant. J. S. Kingsley. Cassino.
 Elements of Embryology. Foster & Balfour. Macmillan.

ANATOMY, PHYSIOLOGY AND HABITS.

The Cray-fish. T. H. Huxley. Appleton. (Intern. Sci. Ser.)
 The Formation of Vegetable Mould by the Action of Worms.
 C. Darwin. Appleton. (Inter. Sci. Ser.)
 Jelly-fish, Star-fish and Sea-urchins. Romanes. Appleton. (Intern.
 Sci. Ser.)
 Elements of Comparative Anatomy. C. Gegenbauer. Macmillan.
 Comparative Anatomy and Physiology. F. Jeffry Bell. Cassel & Co.
 Ants, Bees and Wasps. Lubbock. Appleton. (Intern. Sci. Ser.)
 Comparative Anatomy of Vertebrates. R. Wiedersheim. Trans. by
 W. N. Parker.

DEVELOPMENTS.

Comparative Embryology. F. M. Balfour. Macmillan.
 Introduction to Study of Embryology. A. C. Haddon. C. Griffin
 & Co.

GEOGRAPHICAL DISTRIBUTION.

Geographical Distribution of Animals. A. K. Wallace.

EVOLUTION.

Evolution of To-day. H. W. Come. G. P. Putnam's Sons.
 Origin of Species. Darwin. Appleton.

*ENGLISH LITERATURE FOR COLLEGE
 PREPARATION.*

The following is an extract from the report of the meeting of professors of English held in June, at Boston under the auspices of the Commission of Colleges in New England on Admission Examinations. The list of books here given is to be printed in the college catalogues for 1888-89.:

BOSTON, Mass., 2 June, 1888.

In accordance with the vote of the Commission of Colleges in New England on Admission Examinations, a meeting of teachers of English from the colleges was held here to-day. The following persons were present:

Professor J. F. Genung, of Amherst ; Professor W. M. Warren, of Boston ; Professor H. L. Chapman, of Bowdoin ; Professor T. W. Bancroft, of Brown ; Professor C. F. Richardson, of Dartmouth ; Professor A. S. Hill, of Harvard ; Professor M. A. Jordan, of Smith ; Professor W. R. Shipman, of Tufts ; Professor L. M. Hodgkins, of Wellesley ; Professor C. T. Winchester, of Wesleyan.

The following persons invited to attend were not present :

Professor S. K. Smith, of Colby ; Professor C. F. Johnson, of Trinity ; Professor L. W. Spring, of Williams, and Professor T. R. Lounsbury, of Yale.

The Secretary of the Commission, Professor W. C. Poland, who had called the meeting, was present without voting.

The committee, consisting of Professors Hill, Bancroft and Shipman, selected by the Executive Committee of the Commission to prepare a list of books, submitted to this meeting the list which they had prepared. The list adopted for the next four years is as follows :

1889.—Shakespeare's *Julius Cæsar* and *As You Like It*, Gray's *Elegy Written in a Country Churchyard*, Scott's *Marmion*, Johnson's *Lives of Swift and Gray*, Thackeray's *English Humorists*, Swift's *Gulliver's Travels*, Miss Austen's *Pride and Prejudice*, Scott's *Rob Roy*.

1890.—Shakespeare's *Julius Cæsar* and *Midsummer Night's Dream*, Coleridge's *Ancient Mariner*, Longfellow's *Evangeline*, Macaulay's *Essay on Lord Clive*, Thackeray's *English Humorists*, Webster's first *Bunker Hill Oration*, Scott's *Quentin Durward*, George Eliot's *Silas Marner*, Hawthorne's *House of the Seven Gables*.

1891.—Shakespeare's *Julius Cæsar* and *Merchant of Venice*, Coleridge's *Ancient Mariner*, Longfellow's *Evangeline*, Macaulay's *Essay on Lord Clive*, Webster's first *Bunker Hill Oration*, Irving's *Alhambra*, Scott's *Old Mortality*, George Eliot's *Silas Marner*, Hawthorne's *House of the Seven Gables*.

1892.—Shakespeare's *Julius Cæsar* and *As You Like It*, Scott's *Marmion*, Longfellow's *Courtship of Miles Standish*, Addison's *Sir Roger de Coverley Papers*, Macaulay's second *Essay on the Earl of Chatham*, Webster's first *Bunker Hill Oration*, Irving's *Alhambra*, Scott's *Talisman*, George Eliot's *Scenes from Clerical Life*, Hawthorne's *House of the Seven Gables*.

In response to the request of the Commission the whole subject of the requirement in English was discussed, and the following suggestions were unanimously approved :

I. That it be understood hereafter that the subjects for the compositions prescribed are to be drawn from two or three of the books named in the list for the year.

II. That it is recommended that two hours be allowed for the entire examination in English.

III. That it is desirable that English study in preparatory schools be continuous for at least three years; and that, accordingly, English be reserved for the candidate's final examination for admission to college.

IV. That the lists for four years beginning with 1889 be printed in the next annual catalogues of the colleges.

V. That the Secretary of the Commission be authorized to make known to any one interested the lists furnished for publication in the catalogues.

W. R. SHIPMAN, Secretary.

HERMANN GRIMM AND THE CLASSICAL QUESTION.

In the *Deutsche Rundschau* for May Hermann Grimm treats the *Classical Question* in a very interesting manner. Fully aware that a sharp, summary decision of the question, such as extremists on either side of the controversy have been too apt to put forward, would but feebly aid the slow growth of public opinion, Prof. Grimm prefers to throw new light on the larger issues involved in the movement, and to indicate the general direction in which reform should be undertaken. The restless teacher, impatient to change his programme in accordance with modern tendencies, will find the suggestions made in the article too indefinite for practical use, while his desire to enter new paths will be only intensified by the general tenor of its argument.

The distinguished writer fully justifies the prevailing discontent with gymnasial education as it now is. With interesting illustrations he shows how there has recently grown up in Germany a national self-consciousness and self-respect that so dominate the thought of the present that the relation of culture to antiquity has inevitably been greatly modified. Not only is the youth of today preoccupied with the interests of today, but the teachers also, and even the

philologists, have accepted the present as a standard. The ancient world is henceforth simply a part of the immense mass of investigable matter, with all parts of which the modern world is eagerly busy-ing itself. Philologists accept the new tendencies as readily as the men of the other sciences. Their criticism is remorseless and often even impudent. They allow us no longer to respect the ancients as such, but they apply the standard of the present, and freely condemn men and policies of the classical times, as historians do in treating most recent events.

The youth of to-day are overburdened, not because they have too much work to do, but because the work to which they are held has no relation with their hopes, desires and ambitions. Filled with the spirit of patriotism, and catching something, even in their earliest school days, of the intellectual and moral ardor that inspires the national life about them, they cannot enter with the hearty impulsive-ness of youth into studies that lie wholly aloof from their interests and their hopes.

Thus Prof. Grimm ranges himself without reserve with that great majority of educational critics who see the need of radical change. But from the conclusion that the ancient languages must be removed from school programmes to make room for natural science, mathe-matics or modern languages he is saved by a course of reasoning of which the following is an outline.

The culture-unit for the progressive modern nations is, to him, the total intellectual, moral and religious achievement of the Aryan fam-ily. He sees that, whenever and wherever Aryan thought has found free and clear expression, then and there it may be fruitfully studied. Not only *may* be studied, but *must* be, by any one who purposes to know intimately this largest product of the human mind. In Indian, Persian, Greek, Roman and German literatures he sees expressions of the same originating principle. Thus the modern Aryan should be trained to feel himself, not merely an Indian or a German, but also, above that, an Aryan, whose proper affiliations are with all nations that have spoken or still speak Aryan tongues; and to him such slight differences of language as exist between Sanscrit, Greek, Latin and German are of little moment in view of the similarity of these languages and the unity of their literatures. As some peda-gogists have defended the study of Latin and Greek because these languages are so different from our own, Prof. Grimm defends them because they are so like the modern tongues. To him Greek litera-

ture and Latin literature on the one hand and the literatures of the modern Latin and Germanic nations on the other, are all bound together by a necessary bond of inner likeness, so as to constitute really but one literature; and the various languages, ancient and modern, are essentially but dialects of the great Aryan speech. Every modern child in Western Europe and in civilized America is born to the same ethnic heritage. He has a natural right to enter into this heritage so far as his training enables him to do so. An education is liberal only when it equips him for wide explorations. Thus the youth who is destined by wise and foreseeing parents to become a candidate for liberal culture will have bestowed upon him other means for entering into the great Aryan domain besides the narrow race relations into which he falls by the accident of birth, and in addition to the speech which he imbibes unconsciously from his casual environment.

The claims of mathematics, natural science and the modern languages to receive larger attention at the expense of the ancient languages Prof. Grimm disposes of very satisfactorily by arguments quite familiar to readers of educational discussions. Coming to his practical suggestions, he announces his contention that the outcome of the reform tendency will be that the German language and literature will become the centre, in which all teaching will find its point of departure. This is no new thesis in educational theorizing, as readers of *THE ACADEMY* know. Nor is it new within the range of German discussion. All the more refreshing is it to see a man of Hermann Grimm's standing in German scholarship announce his accession to a view that is evidently destined to determine the direction in which the long established gymnasial course is to be modified.

The traditional course of study in the gymnasium, in which a boy studies Latin nine years and Greek six, assumes, of course, that it is from Greek and Latin as centres of culture that the man is to radiate into the other realms of Aryan thought. Americans in middle life are to-day numerous who in their college course were never asked to read a play of Shakespeare,—though they may have been made to recite certain text-book matter *about* Shakespeare,—but were required to make their way laboriously through two or three plays of the Greek tragedians. This was making the classic literatures the centre. From these the student was to come to his Shakespeare and his Chaucer. To reverse this procedure is what Prof. Grimm recommends. A motive for reading Shakespeare is near at hand; it comes

by the most direct inheritance: it is not a trait of high culture already otherwise acquired to be drawn to the great authors in the vernacular. Hence Shakespeare and the moderns,—Grimm says *Goethe und die Seinigen*,—should be adopted as the nucleus, the natural, simple, racial starting-point, not needing our artificial schemes to bring it into existence, in which motives should be found for larger roaming in the other dialects of Aryan speech. At present the boy has no motive of his own for reading Cæsar and Virgil. The all-important thing is to give him one. He will find as he ranges through his own literature that it touches the old literatures at every point. He comes to barriers which he cannot pass till he has more linguistic knowledge. Feeling the constraint of these barriers, he will be eager to work at their removal.

Of course all this implies a great modification of the nine years' Latin and six years' Greek. Pedagogues must learn to throw away much useless lumber from their methods, and revive the ancient art of learning languages for use. Given a *motive*, and fluency in Latin and Greek is achieved with quickness and ease. Prof. Grimm offers a few suggestions as to what can be got rid of in gymnasial schemes. But on these points American schools are already far in advance of the German, and nothing that he advises would be new to our readers.

Prof. Grimm's style, already well known to even tyros in the study of German, appears at its best in this article. We would urgently recommend a thorough study of the essay, for it is extraordinarily fruitful of suggestions, and touches most pregnantly upon many points familiar in American discussions.

PRESIDENT ELIOT ON SCHOOL PROGRAMMES.

Under the title,—“Can School Programmes be Shortened,”—President Eliot, of Harvard University, prints in the August *Atlantic* the paper which he read at Washington last February. However the body of educators to whom it was first presented may have received it, the wider public that is now reading it will cordially approve its arguments and insist that it points out the true path of improvement in primary education.

To us the paper seems the most important educational document of the year. Not a few observers of the schools and their results

have begun to query,—what is our elaborate system of supervision doing to vitalize the teaching which our children get? That teachers are apt to fall into routine and to grow unnaturally hard and exacting in their interpretation of prescribed courses of study, is at least intelligible. The monotony of the school-room movements and methods, the oppressive burden of the discipline, the heterogeneous mass of the pupils,—all these are taken into the account by the large-minded critic of educational results and temper his verdict when he has to pass an opinion on the work of the teacher. But do the supervising officers also need the generous forbearance of the critical observer? Do they also fall into the routine without knowing it and contribute the weight of their authority to increase the inertia of the mass? Revelations have during the past year been made in New York City that make it clear that the worst evils of machine methods are there perpetuated and intensified by the influence of the superintendent's office.

The amelioration in our system of instruction that President Eliot shows to be now pressingly needed must be left in the hands of the supervising, theorizing, planning powers, whose authority is adequate to the task, and whose view of the whole complex of interests affected is comprehensive, as only that of highly placed officials can be. Teachers work in their "course of study," and with a view to the coming examination. The very fidelity of the teacher in living up to the letter of the law measures, it may be, his lack of originality and of power to initiate a fresh turn of affairs in the school that might overcome the tendency to torpor and stagnation. Superintendents, with the governing boards at their backs, have it in their power to inaugurate reforms. The teachers, we believe, are much more able and willing to carry into effect such suggestions as President Eliot makes than they are usually credited with being.

The title of the article indicates its drift. The average age at which students enter college is shown to be nineteen years. As this brings graduation at twenty-three, and the end of professional studies at twenty-six, the need is seen at once of reorganizing something in the course of education so that the young man's beginning in life may be made considerably earlier. That in such circumstances so many young men actually go to college would seem surprising. But President Eliot is confident that were it possible for the average youth to reach college at an earlier age, the number of students would be much increased.

The place in the system at which time may be saved is shown not to be the preparatory school. This has all it can do, beginning with the children as it gets them, to carry them on through the distinctively college-preparatory work. It is in the primary school that the precious years are wasted, and it is here that the programme can be shortened.

To make clear his positions, President Eliot compares the course of study of a French *Lycée* with that of the corresponding years in the Boston Grammar and Latin Schools. This comparison was facilitated, for those who listened to the paper as read, by a chart presenting in parallel columns the two courses year by year. The conclusions of the writer were thus shown to be just and not forced. "The French course of study," says he, "is decidedly the more substantial; that is to say, it calls for greater exertion on the part of the pupil than the Boston; it introduces the children earlier to serious subjects; and it is generally more interesting and stimulating to the intelligence." Both the programmes specify the ages at which boys should be at given points of the course. But while in the French school the boys of any class actually are of the theoretical age, in the Boston one they are two years and three months older than by the programme they should be.

"The Phillips Academy at Exeter, N. H., has a four years' course which is so full that hardly any suggestion can be made for condensing or abbreviating it. But what are the requirements for admission to Exeter? 'Some knowledge of common school arithmetic, writing, spelling, and of the elements of English grammar.' These requirements might reasonably be made of a boy leaving the primary school at eight years of age; yet the average age of admission to Exeter is sixteen and one half."

Even if we add one or two years to the eight, at which age President Eliot would have the boy leave the primary school equipped as above indicated, yet what a condition of arrearage is revealed in the educational development of American youth by this simple comparison!

The suggestions of improvement which the writer makes and elaborates with argument and illustration are comprised under five heads:—

1. Better teachers are needed. To this end a better tenure of office is necessary, in order to secure for the function of teaching greater consideration and dignity. A larger proportion of male teachers is also desirable in order that general longer continuance:

in the work may be effected and that the habit of teaching from day to day without that seriousness of purpose that belongs to the hope of achieving a recognized professional success may be done away with in the largest possible measure.

2. Courses of study must be improved. "A good course of study will not execute itself,—it must be vivified by the good teacher; but an injudicious course is an almost insuperable obstacle to the improvement of a city's schools. As a rule, the American programmes do not seem substantial enough, from the first year in the primary school onward. There is not enough meat in the diet. They do not bring the child forward fast enough to maintain his interest and induce him to put forth his strength."

3. "Much time can be saved in primary and secondary schools by diminishing the number of reviews, and by never aiming at that kind of accuracy of attainment which reviews followed by examinations are intended to force. It is one of the worst defects of examinations that they set an artificial value upon accuracy of attainment. Good examination results do not always prove that the training of the children examined has been of the best kind."

4. Striking statistics are given showing that children are often kept back and that thus the average age of classes is often made much higher than the programme for the grade in question calls for. "The great body of children ought to pass regularly from one grade to another, without delay, at the ages set down on the programme; and any method of examination which interferes with this regular progress does more harm than good."

5. It is suggested that the shortening of the school year has gone far enough, and that some steps should be taken in the other direction.

As it appears in the *Atlantic*, President Eliot's article occupies eight pages. It contains no fine writing, and has no literary flavor which some writing on the homely concerns of popular education will insist on trying to attain. It is simple and plain, direct and strong. Each paragraph of it gives food for thought. It challenges all leaders and governors of educational systems to do something or to confess their reasons for doing nothing. We hope that this paper, with perhaps some additional matter from the same pen on related topics, if this alone shall seem too brief for the purpose, will be issued separately, in order that it may have the largest possible circulation among educators, whose general consensus of opinion must finally determine the feasibility of the reforms which it urges.

THE TWENTY-SIXTH UNIVERSITY CONVOCATION.

The meeting of the Convocation at Albany this summer was by all odds the best we have ever attended. For the first time within the memory of man the weather was not too hot, and more people came at the beginning and stayed till the end than we have ever known before. The details of the meeting were on the whole well managed, though it is difficult to see, when the Executive Committee announces a time limit, why this limit should be rigidly enforced in the case of some while others taking part in the same discussion should be allowed to run on indefinitely. We noticed two men interrupted in the middle of a sentence at the end of ten minutes, while twenty-eight minutes were accorded to another man the same morning, and for anything that appeared he could have had twenty-eight minutes more if he had wanted. There certainly should be a time limit and it certainly ought to be enforced without fear or favor.

Taken as a whole the written papers were not above the usual standard, but the discussions were the best we have ever heard. Moreover, the whole spirit of the Convocation was live, practical and aggressive. The attendance was good, and the social element by no means lacking. The Chancellor's reception was enjoyable and well-attended in spite of the rain. To our thinking the address of Professor E. B. Andrews, of Cornell University, on "The Federal Convention of 1787," was the best single feature of the Convocation. One of the most practical as well as entertaining features was the presentation of "Defects in Our Present Educational Processes" by Messrs. Forbes, Hill, Milne, Ford, Bardeen and Adams. Each of these gentlemen had accepted the invitation given some weeks beforehand and had prepared himself to say something practical and definite. The result was a series of short talks, with all the charm of extempore speaking and with careful preparation.

Prof. Forbes spoke of the three functions of the teacher, that of awakening the mind to activity, selecting subject matter adapted to qualify and discipline the faculties, and guiding and criticising the progress of the pupil. Too much of the teacher's effort is expended on the last of these. The second of them is at the present time a battle ground. The question of educational value, the

selection of proper matter to develop and discipline the mind, is receiving a full share of attention. The great defect of education at the present time is the neglect of the first function, the most important of all. There is no theoretical disagreement among teachers as to the object to be obtained, but our practice hardly conforms to our theory, and the result is failure to produce intellectual power and independence. The strictures so often made upon the value of our teaching have little basis outside of this defect. Our educational processes are too dogmatical and too mechanical. A man may absorb a large amount of learning and yet have little intellectual power. The teacher gives the pupil not only the facts but also the interpretation, thus distinctly preventing the pupil from working the interpretation out in his own mind. The remedy for all this is to go back to the method of Socrates, the greatest of all teachers. Socrates taught no philosophic doctrines, he laid down no dogmas. He differed from the teachers of the present day in asserting that "he knew that he knew nothing." We have two things to do. We are to have facts brought out in the class room, but we are not dogmatically to lay down the relations which we suppose to exist between these facts.

Principal A. C. Hill, of Cook Academy, thought that there were two kinds of defects in educational work, defects in reference to means, and defects in reference to ends in education. Much discussion has been given to defects in the means, but it does not matter about these if the ends are only reached. Mr. Hill specially emphasized the failure to develop the emotional nature. There seems to be an idea that all enthusiasm must be squeezed out of the pupil. It is a tendency of much of the college education of to-day so to repress the emotional element that when the student goes out into life he has no enthusiasm for anything. A certain teacher at the close of a discussion in the class room bravely announced to his pupils, that there were just as many arguments on one side of every question as there were on the other. So the student goes out into life with no enthusiasm in any direction because there is always something to be said on the other side. Darwin furnished an illustrious example of this defect when he said that his interest in nature and in her sublime and beautiful phases had died away. There was atrophy in that part of his nature. We have intellect and will, and these are educated, but we neglect the emotions. This power of emotion makes great the work of life. Another great defect in our

educational processes is that they fail to give self-reliance. The great objection to this theory of education is that it does not teach us Americans self-reliance. It teaches us to rely upon the government. It is this which leads to the combined attack upon the public purse. One man will say "I want an appropriation for my town," another says, "I want to dig a canal, but I want the State to pay for it." Teachers try to make things easy for the pupils, and one of the things we do not see as the result of our education is the power of thought. Parents rely upon the state to educate their children. The truth is that the people should support the government and not the government the people. A third fault is lack of companionship between teacher and pupil. Socrates walked with his pupils and talked with his pupils. It was a secret of his power. It has been the secret of such power through all ages. It was so with the Peripatetics. It was so with Christ. But it is not so with us. We deal out facts to our pupils, and in this way we limit our whole system of education. There are too many women teachers and not enough men teachers. Ninety per cent of our teachers are women. They are not necessarily the best teachers, and their uniform employment is getting to become one of the great defects of our educational system.

Professor J. M. Milne, of the Cortland Normal School, said, "Much as I agree with the speaker who said that great stimulus was required, much as I may agree with the statement that the emotions are not sufficiently trained, there is another thought that comes to me more vividly than the rest, and that is the utility of the age; the age when manual training is coming so quickly to the front; the age when in every walk of life, and in every profession, life is marked and measured by money value. We are not thinking, I say, enough of the manhood of the individual. I can agree with the gentlemen in the plans of the school room, in the library, in the apparatus, in the books, in the method, and remark that in the center of all, there must be a man. 'Systems,' says Emerson, 'are but the elongated shadows of great men.' We are forgetting the fact that the teacher has only a knowledge of processes, and cares little for the character of the pupil, and forget that the great end of education is character building. Man speaks to man, in this as in all ages. I would state it more definitely than Principal Hill or Professor Forbes, I believe that the great success of Socrates was his manhood. He was a man, and men gathered around him with expressions of love. I think we need more of interest and less of method. I think in many of our studies

of method we are defective. We try to find the methods of men, of Froebel, of Ascham of Ratich; we find that the lives of these men made them strong. This is true not only in teaching, but in all departments of learning. At the head of every historic epoch stands a great man. Moses who led the children of Israel out of bondage, Socrates who disenthralled men in thought, Gladstone and Cavour in modern politics, Raphael and Da Vinci in art, all these stand at the very beginning of their respective eras. All these men stood for ideas, and just in proportion as we represent ideas, we shall be successful as teachers. That I say is the great part of the teacher. He should be a man of character, so that he shall inform man upon all living subjects,—so that he will get life to live. I believe that the teacher should be in higher harmony with the times. This is certainly true with the great ideal teacher, who said, ‘I came that they might have light and have it more abundantly.’ I believe that this is the true mission of all teachers in the history of the world.”

Principal J. W. Ford, of Colgate Academy, favored the introduction of manual training for boys, including mechanical drawing, and instruction in needle work for girls, into all village schools and into all state schools of academic grade. He thought this was the remedy for the social trouble of the times. He would give the boys and girls a great deal more to do and make the way as easy and pleasant as possible. He would emphasize the moral element in schools. High morality should be embodied in the character of every teacher. Boys can not be educated in sections, nor can a boy be morally educated by Sunday teaching alone. A boy happens to be a moral being and his teacher is likewise a moral being and when they come together there is moral contact and the result of the contact should be a strong influence for good. Teachers cannot obtain power over youth by holding themselves at a distance. There should be something more than mere school discipline in school affairs. The schoolroom is a court, and the teacher is judge, jury and everything. There is no place where the moral sense is so agitated as in school. The boy gets his moral ideas and forms his moral creed from the ideas which he gets there. Many a boy comes into school with moral defects and goes out having had those defects corrected by a manly teacher.

Mr. C. W. Bardeen, Editor of the *School Bulletin*, prints his remarks entire in the leading article of that journal for August. The defects he alluded to were lack of brains, and the endless series of failures

that necessarily come from the system under which teachers are usually employed. The defects of which he speaks are, it seems to us, radical and unavoidable under existing conditions. They cannot be stated too plainly or reiterated too often. Their only remedy lies in the education of the community until it comes to recognize the evil and its ruinous consequences.

President C. K. Adams, of Cornell University, questioned whether as much was accomplished by the expenditure of money for education as ought to be expected. He compared the results obtained in this country with those obtained abroad very much to our disadvantage, and he found the reason for his unfavorable judgment in the lack of co-ordination in the various departments of education in this country. The different classes of schools do not attend sufficiently to doing the work which they were designed to do. The grammar schools attempt to do the work of the high schools and the normal schools trespass upon the work of the academies. The colleges certainly are not doing their own work. They are doing the work of the high school and the academy, and they ought to co-operate by any method by which all this will come to an end. The college officers ought to agree upon what each college should require and this should be furnished by the high schools and academies. The normal schools should confine themselves to training teachers. They should not interfere with the work of the academies and high schools, and nothing should be allowed to come into their curriculum which does not specially prepare the pupil for the work of teaching. So the colleges ought to eliminate from the curriculum all academic work, and the line rigidly drawn. It is to be hoped that the colleges of this state will be able to come together and agree upon what they will require and that they will require the same things, so that a boy can fit himself for any college in the state before he makes up his mind what college he will go to. Besides this lack of co-ordination in our system, there is too much dependence upon formalism and too little dependence upon the live teacher. This everlasting marking, this everlasting making of statistics takes the time of the teacher when he should be thinking how he can inspire his pupils. Inspiration in the school is everything. We forget our chemistry, our mathematics, our botany, but inspiration remains.

THE STATE ASSOCIATION AT WATKINS.

The New York State Teachers' Association held its forty-third annual meeting at Watkins, on July 4th, 5th and 6th.

The weather was as propitious as July weather well can be; the beauty of Watkins Glen gave added attraction and there was a good attendance of those interested in educational work.

On the opening evening, after a cordial welcome and a graceful response, the Hon. Fremont Cole read a paper lauding the common schools at the expense of all higher education. He evidently supposed that only common school teachers were to be his audience, and sought favor accordingly. It was most gratifying to note that he did not, in the least, have the sympathy of the Association.

On Thursday morning work was begun promptly upon the constitutional amendments proposed by the committee appointed last year. The Chairman, Principal Williams, of Glens Falls, read the report; and after full and careful consideration by sections, the amendments were adopted substantially as presented by the committee. The pith of the revision is to give continuity to the governing policy of the society: to make it more thoroughly representative of all educational interests, and to give to it a permanent home. The Executive Committee is to be elected by the Association on the nomination of a special committee so framed as to represent all school interests; of the six members of the Executive Committee two are to be elected annually—thus securing for each year a majority of experienced members.

The meeting for 1889 is to be held at Brooklyn: thereafter the annual meeting will be held at Saratoga. To avoid conflict with the Regents' Convocation, the new constitution provides that the time of meeting shall be "just before or just after the Convocation as the Executive Committee may determine."

Of the papers read before the Association, that of Superintendent Whitney, of Ogdensburgh, on the means for reaching the teachers of country schools with some measure of normal training, was especially clear, pointed and practical. It was regretted by all, that the exigencies of the programme cut short the discussion of this paper.

The subject of "Manual Training" came several times before the Association,—in the admirable paper of Principal Sheldon, of Oswego, and in the reports of the committees on "Improved Methods" and on the "Condition of Education." In each case much interest was evinced; what is doing was told to eager listeners, and what may be accomplished was eagerly discussed.

The papers of Dr. Hoose, of Cortland, and Principal Cyrus A. Cole, of Amsterdam, dealing with general rather than specific lines of thought, while adding to the interest of the session, did not present points for discussion. The paper of Prof. Holt, of Boston, on his method of instruction in vocal music was listened to with great interest, but apparently made no practical lodgment. It was followed by the recital of a most peculiar jumble of scraps, dramatic, poetic, humorous—a kind of elocutionary medley,—by Mr. Beal, an elocutionist, of Rochester, whose announcement of a "Summer School of Elocution" to open at Watkins on July 7th was already familiar.

The evening sessions after the opening were occupied by an address from State Superintendent Draper, and an illustrated lecture on "Rocky Mountain Scenery and Fauna," by Prof. Bickmore. The lecture of Prof. Bickmore was delightful and instructive—as goes without further telling. Superintendent Draper's address was admirable in its perfect adaptation to the occasion, its clear, sharply defined statements, and its forceful command of attention and interest. He discussed the legal relations of the teacher,—to the pupil, to the parent, to the trustees or board of education, to the general school system. Handsomely and vigorously presented, devoid of "clap-trap," the address combined instruction, counsel, encouragement, inspiration. The general spirit of the Association this year seemed excellent. There was no unseemly scramble for offices; a strong desire was manifested to have all classes of schools interested in the Association.

Principal Cook, of Potsdam, the new President, will take strong hold of the work and will be earnestly supported by the Executive Committee. A canvas will be made for life members and an effort to gather a large representation of teachers at Brooklyn in July, '89.

COMMUNICATIONS.

To the Editor of THE ACADEMY :

Last May the following circular letter was sent to the secretary of the Board of Education in each of the one hundred and thirty-one cities, which, according to the report of the Commissioner of Education for '85-'86 have between 15,000 and 50,000 inhabitants, and also to the city of Topeka, which is omitted from that list.

OSHKOSH, WIS., May 9, 1888.

To the Clerk of the School Board.

DEAR SIR :—A change in our city charter with reference to the method of electing the Superintendent of Schools is contemplated, and we wish to collect statistics with regard to the methods in use throughout the United States. A copy of this letter will therefore be sent to the Clerk of the Board of Education in each city having between 15,000 and 50,000 inhabitants (according to the report of the Commissioner of Education for '85-'86). Will you kindly answer upon the enclosed postal card the following questions:

1. How is the Superintendent of Schools in your city elected (i. e., by the Board of Education, the Common Council, or popular vote)?
2. For how long a term is he elected?
3. Does he devote his whole time to the superintendence of schools, does he teach in any one of the city schools a portion of the time, or does he follow any other vocation than his school work?
4. Is it the policy in your city to select a professional teacher for this position?
5. What salary does the Superintendent receive?

An early response to these questions will greatly oblige.

Yours truly,

R. H. HALSEY.

Answers were received from one hundred and ten cities. Below is a tabulation of these answers:

I. HOW ELECTED OR APPOINTED.

By Board of Education,	-	-	-	-	99
By State Board of Education,		-	-	-	3
By Common Council,	-	-	-	-	2
By Popular Vote,	-	-	-	-	2
By Mayor,	-	-	-	-	1
By Seniority among Principals,		-	-	-	1
No Superintendent,	-	-	-	-	2

2. LENGTH OF TERM.

For one year,	-	-	-	-	-	71
For two years,	-	-	-	-	-	8
For three years,	-	-	-	-	-	10
For four years,	-	-	-	-	-	3
At pleasure of the Board,	-	-	-	-	-	12
No report,	-	-	-	-	-	6
						<hr/>
						110

3. TIME, HOW EMPLOYED.

Devote whole time to supervision,	-	-	-	-	94
Teach in high or other school,	-	-	-	-	7
Follow some other vocation also,	-	-	-	-	4
No report,	-	-	-	-	5
					<hr/>
					110

4. PROFESSIONAL TEACHER.

Yes,	-	-	-	-	-	97
No,	-	-	-	-	-	8
No report,	-	-	-	-	-	5
						<hr/>
						110

5. AVERAGE SALARY.

Average salary,	-	-	-	-	\$1,995.
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Several points in these statistics are worthy of attention:

(1). That the method of electing the superintendent is quite uniform. Several correspondents have enlarged upon this subject, but there has been no adequate defense of any other mode of election than by the Board of Education.

(2). That so large a majority of our cities should still elect their superintendents for the short period of one year. It would seem almost self-evident that no radical changes, however necessary, would be made in the school system of any city by an officer who feels that his plans must be judged by their workings during one year.

(3). It is encouraging to note that in the great majority of these cities the superintendent devotes his entire time to the work of supervision. It was a surprise to me that in only seven cities was the superintendent engaged in teaching, for I had supposed that many

places between 15,000 and 20,000 in population had one and the same person for superintendent of schools and principal of the high school.

(4). It will be a source of satisfaction to all interested in the welfare of our schools to learn that the number of superintendents who are not professional teachers is proportionately small.

R. H. HALSEY.

NOTES.

THE ACADEMY is mailed promptly on the first of the month. Subscribers should inform us if it is not received within two days of the time when it ordinarily reaches them.

At the close of last June, the editor of THE ACADEMY resigned his position as principal of the Syracuse High School to enter upon other work. Many inquiries have come to us asking what effect this will have upon THE ACADEMY and its future. To all these we can briefly answer that for the present there will be no change that will affect its publication, its purpose or its methods. THE ACADEMY was established as the official organ of the Associated Academic Principals of the State of New York. It has been conducted entirely by teachers and wholly in their interests. It owes its success to the moral and material support which secondary teachers have given it. With its growth and prosperity the personal responsibility of the editor and publisher have gradually been lightened, and more and more it has become a coöperative arrangement for mutual benefit. Until the meeting of the principals in Syracuse for the Holiday Conference of 1888, it will undergo no change. At that time some new arrangement may be determined upon, and if this should happen timely notice will be given. It has no connection either intimate or remote with the new firm of Allyn and Bacon.

The following resolutions have been sent to us with the request that they be published.

STATE OF NEW YORK. DEPARTMENT OF PUBLIC IN- }
STRUCTION. BUREAU OF TEACHERS' INSTITUTES. }

We, the members of the Institute Faculty of the State of New York, learning of the death of Professor James Johonnot, and desiring to express our high appreciation of his splendid services to the cause of public education, do hereby resolve:

That, as teacher, institute conductor, and author, Professor Johnson not deservedly ranks with those who are *recognized* as educational leaders and reformers.

That he has rendered distinguished service to the educational interests of the State of New York, and is entitled to the lasting gratitude of teachers and friends of education.

That his purity of personal life and character, and his vigorous intellectual qualifications, challenge our highest respect and admiration.

That we mourn his death as a great loss to the teaching profession.

That these resolutions be sent to the family of the deceased, and a copy to each of the educational journals of this State.

JOHN H. FRENCH,
HENRY R. SANFORD,
S. H. ALBRO,
C. T. BARNES,
ISAAC H. STOUT.

BOOKS RECEIVED.

What Words Say. A Practical Analysis of Words for use in Elementary Schools. By John Kennedy. New York: Kennedy & Co., Publishers. 1888.

The author of *What Words Say* believes that "primary education is vitiated by the use of unanalyzed terms." Until the pupil comes to recognise the fact that each syllable is significant, he cannot be said really to know what words say. Accordingly the author has prepared a series of exercises designed to put the pupils of our elementary schools in possession of such knowledge. In each exercise is given a group of words which have a common root, prefix, or suffix. The meaning of this common element is given at the head of each list, the other syllables are explained in connection with each word, and finally in the notes which follow the author attempts to show that the use of a word always conforms to its analysis. After mastering each exercise the pupil is expected to construct original sentences illustrative of the use of the new words.

While we are not disposed to deny that our pupils cannot learn too much about the derivation and meaning of words, we seriously doubt whether the method Mr. Kennedy has followed is best calculated to add to their knowledge. Not a few of the words illustrated are

either Latin or Greek, like Carnifex and Archon, and are not properly English words at all, or else are technical terms which are of doubtful use to the pupil and need besides to have the limits of their application accurately defined. Often the analysis is misleading and sometimes the definition wrong. For example Malaria is thus treated under the heading MAL=BAD, ILL: "MALARIA *ari*—air—*a*—disease." A treatment which cannot but lead the pupil to understand that the ending *a* means disease. Malaria is then defined as "a disease caused by breathing foul (or bad) air" etc., a definition which is correct neither for the Italian nor the English word.

More serious than an occasional error is the mistaken assumption that because it is easy to point out in a particular case the original word from which we get a derivative, the derivation of sense immediately becomes plain. In fact it is frequently a most difficult problem and can be determined only by historical investigation. Where the derivation of sense is obscure the author seems not to hesitate to invent one, as, for instance, where he explains that Carnifex was the ancient Roman executioner "(he who *made* the axe sink into the *flesh* of the condemned)" Again a contingent liability is one that "*touches* upon probability," and the Bible is so called because it is the "book of books." The literal meaning of asbestos, unquenchable, is made plain by the statement that "Since it will not ignite, it can *not*, therefore be *quenched*, or extinguished."

Sometimes the author lays too much stress upon the meaning of a prefix or rather mistakes its force. Thus an incendiary is one who causes "a *burning in* buildings," and "concise means originally *cutting* short one's expressions when conversing *with* another."

While the study of the source of English words is extremely interesting, one must not overlook the truth that only in a general way does the primitive word fix the signification of the English word and does not teach the range of meaning which the derivative may acquire. This acquired meaning is often the essence of the English word and the etymology of little use save to show how long and devious a path the word has travelled. Mr. Kennedy defines pilgrim with reference to its etymological meaning as "a wanderer, as if going *through* the *fields*," and "to perigrinate is to *wander* about (as if to *wander through* the *fields*)." But Pilgrim has come to be restricted to the special sense of a wanderer who goes to visit a holy place and however familiar one may be with the fact of their origin, one would never think of associating together the words pilgrim and perigrinate as having a common meaning.

THE ACADEMY:

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DEVOTED TO THE INTERESTS OF HIGH SCHOOLS ACADEMIES AND
ACADEMIC DEPARTMENTS

VOL. III

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NO. 7

ON MAKING THE STUDY OF ENGLISH LITERATURE INTERESTING.

"We are in this dilemma: if we do not examine in English Literature it will be absolutely unknown; for an impending examination is a jealous master—it absorbs all the intellectual energy of its servants. An anxious candidate would think it a piece of profligate dissipation to read a book requiring any close attention that did not bear on his task. Young people now will not read Shakespeare, hardly even Byron or Walter Scott, in play-hours at school; and this is more especially the case since these authors—who were our own pleasant companions on winter evenings or summer afternoons—have been included in the lists of subjects for examinations; they have thereby become lessons, and got to be regarded by the schoolboy as having gone over to the enemy altogether."

These casual remarks, from Henry Latham's work on *Examinations*, hit the main difficulty in making the study of English Literature interesting. If you examine in other studies, but not in literature, then this study will be neglected. If you include literature in your examination plan, the study of it becomes perfunctory and ceases to be entertaining. But other studies may thrive and accomplish their legitimate objects without being entertaining. The mathematics and the natural sciences yield their results to vigorous intellectual application. Not their best results of course to mere grinding

labor untouched by zeal, but still such results as schools may hope to attain. The ancient languages also have confessedly ceased to be interesting to the mass of students, and have come to be relegated, with almost all the rest of school work, to the limbo of disciplines or gymnastics for the mental faculties.

But English Literature is a late comer into the school programmes, and the old associations still cling to it even as a school study. All literature was produced, of course, to entertain, to persuade, to instruct. By the literature in our own tongue we have all actually been entertained, persuaded and instructed, and we hope that this may never cease to be so. Should our readiness and susceptibility to be thus interested by our poets and philosophers become in any manner blunted, we should deem it a very great personal calamity.

Precisely because we feel that a main hope of our lives depends upon our ability to derive happiness and strength from books, we have asked the schools to recognize this fundamental fact of our consciousness and to help our children to a closer relation with the great writers. That is to say, as young people have shown a natural liking for Shakespeare and Scott, we have taken the hint, and have brought Shakespeare and Scott into the school room. Our purpose was to make the young people love these authors still more and appreciate them better, and if some were unfortunately so situated that they never came into contact with such books, to bring it to pass that all should equally have their opportunity to enjoy the same pleasure.

This was our purpose, this is our theory. But a misgiving is coming to be entertained as to whether our purpose is getting accomplished, and our theory lived up to. That great educational revival for which we wait does not come into the schools with Shakespeare and Scott. The pedagogic incubus is too heavy. Plan your system of hours and lessons with regular test examinations for promotion, and even the greatest of poets and the most soul-stirring of philosophic seers seem fated to succumb. The good scholars are faithful, but those who are better than faithful,—how few are they,—how do they fail to leaven the lump!

Perhaps our very zeal as teachers leads us astray. We have seen young people revel in *The Lady of The Lake* at their homes. We have seen them commit it to memory, act it in their parlors, and enter into the poet's spirit with all the energy possible to youthful enthusiasm. *Therefore* we prepare them an edition with notes, we

read a little at every lesson, we look up all historical and geographical references, we define the words, we draw a map of the country on the black-board, we have reviews, and finally we have an examination. This is doubtless because we have normal schools that have shown us how to go to work. But if normal school methods might yield a little to common sense, we should take our hint from the interested children, and not from the artificial pedagogy that makes our editions of the poets and trains our teachers. If we watch the group of youngsters who are enacting Fitz James and Roderick Dhu, we shall find that they care nothing for the history and geography of the poem, and that they are using an edition without notes, without ever feeling the least need of notes. They catch the swing of the rhythm and their bosoms swell with the heroic mood of the story. Now let it be duly noted and taken to heart, that these children, thus naturally imbibing a literary influence, are probably engaged in an intellectual and emotional process which is nearly up to the top of their bent, and that you cannot inject into this juvenile mental operation any additional elements of information about the externals of the poem, such as suit your matured and much examined mind and your examining habits, without wrecking the whole operation and leaving nothing but ruins in its place.

The question may be fairly and seriously asked, why exact of children reading Scott an accuracy of information about a poem that no adult person ever attains or ever feels the need of attaining. No one but an annotator fresh from reading his proof could answer the questions we have known to be published as models of literature examinations. For every successive stage of mental growth, there is possible a new and deeper relation towards a great work of literature. But no man ever attains such a degree of culture that, in order to the fullest enjoyment of such a work, he must exhaust all the possibilities of minute research which it suggests. No author is important enough for that, and life is too short, and books, old and new, are too many.

We think we can catch a natural childish enthusiasm and enrich it with our laboriously collected learning, and lo, the enthusiasm is gone. Then we examine to find the residuum of our learning, and we become aware that that too goes very quickly, and in a few months hardly a trace of it is left.

We profess that our main purpose in teaching literature is to inspire a love for the great authors. If our teaching does not

accomplish this purpose, it fails; if it actually begets a distaste for good literature, it fails most disastrously. And teachers who are honest with themselves are beginning to express no little skepticism as to the value of much of the current English teaching, because it persists in remaining on the low task-work level at which they acquiesce in keeping other studies, but above which they feel in their hearts that this particular study ought to rise.

Lacking originality and fearing to trust the indications furnished by the natural tendencies of children, and, worse than all, being normally or classically trained, we allow the book-makers and the considerations of convenience in examination to determine for us our methods, and of course we go wrong.

The great literary works that have been read with zeal and relish by generations of English speaking people all won their way to the heart of the race before they were annotated. Notes are a late growth about the great writers, the effect and not the cause of their popularity. When scholarship and learning take a work in hand, much is found that tempts research, and allusions appear in abundance that suggest comparison and elucidation. But this play of erudition about a poem does not help its vogue. The notes of the erudites are meant for other erudites. This is a development of modern intellectual activity that concerns only men beyond their youth, to whom painful and nice studies that exact wide reading and mature culture are in themselves a pure pleasure.

Just as Shakespeare and Scott found their way to the affections of readers in the plain text, so all things else that children read with enthusiasm are free from the pedagogic encumbrance of notes. Any interesting book whatever becomes a dismal task just so soon as it is annotated. It is not that the children are wayward. We old readers ourselves are subject to the same law. We could not and would not read even "Dr. Jekyll and Mr. Hyde" if it had a body of variorum notes appended to it, some knowledge of which we should be required to show after our perusal of this engrossing story. But the book-makers are at work, and everything possible to read in school is appearing in its garb of learning, and the children carry the books to and fro, trying their best to get up the notes, however stupid they find the text.

The chief foe of the literature teacher is the note-maker. But this is because the teacher is first a foe to himself in that he adopts a method that gives the note-maker his opportunity.

We read Homer and Virgil in school very slowly, and usually go but a little way in them, partly because the language is difficult, but principally because of the classical tradition that the vast body of learning that has grown up about those authors must be exploited as we go on. But why should we read a poem of *Scott* slowly? Is the "Lady" in its nature a slowly moving poem? Have the classical traditions any right to govern us in our own literature? Do children read slowly when their hearts are in their reading? Better than a "Lady of the Lake" with any conceivable appendage of notes would be a book containing two or three other poems of the same author also, in order that when one was read another might be soon begun.

Notes are beautiful things to make, but they are oppressive and deadening things to take at second hand. The annotating that should be allowed in the school reading of an author is just such annotating as teacher and pupils can between them originate in response to any need that actually arises. Children will investigate with zeal with a motive behind them, and this self-motivated research in books of reference, guided and stimulated by a teacher who knows how much more, in such cases, the half is than the whole, will be fruitful and memorable.

Teachers are too much bent on teaching all that is knowable about the subject in hand. The test of a good literature teacher is that he can afford to trust to the impression that a strong or beautiful passage will make on the hearts of the youth before him, and will not insist on questioning at every moment and asking for analytical comment either original or learned from notes.

Could the English authors be put into our pupils' hands absolutely free from notes, our case would be more hopeful. The books would be smaller, or could contain more literature, and teachers would be freed from a temptation to evil practices.

All devices for enlivening the literature hour are good: all devices for making it dull are bad. Notes belong in the latter class. The story is told of certain shrewd girls, engaged in reading Milton, that they found by trial, when crowded for time, that it was possible to save themselves in recitation by studying the notes while neglecting altogether to read the poetry. To be sure, the teacher can neglect the notes in the text-book and require the pupils to do the same. This should always be done when it is necessary to use editions with notes. But it is much better to have the notes wholly absent from the book used by the class. An annotated copy or two may be

allowed to gather dust in the reference library. The teacher can then aim at awakening curiosity in his class, and may enjoy the happiness of having voluntary questions propounded by pupils who ask them actually because they feel the need of explanation, and then he can furnish his own notes or put the pupils in the way of satisfying their desires by a little effort of their own.

An old teacher, who does not know on what psychologic grounds the practice is justified of thrusting information upon pupils who as yet have no desire for it, may perhaps be pardoned if he goes so far in his heresy as to maintain that information thus conveyed never arrives at its destination as knowledge, and that no disciplinary results are to be got from such a process.

The content of notes, the medley of information, definition, chronology and so forth,—we all know what it amounts to,—is more easily examined than is the content of the literary work itself. Hence an additional temptation to the routine teacher of literature lies in the natural desire to get up a good preparation for the coming examination. But this is not an inevitable difficulty. Make your questions to match the case of young persons of such intelligence and maturity as your pupils have, who are fresh from the reading of the authors in which you are examining. Presuppose great familiarity with the story or the argument; presuppose the conquest of verbal difficulties; presuppose the pupil's previous reading. But do not presuppose the memory of some other person's literary comparisons or textual criticism. This cannot, of right, come into an examination of the pupil's own achievements. The Boston supervisors make every year sets of literature questions which wisely call for a just degree of intelligent familiarity with the authors read. Should they adopt Mr. Thom's methods of examination, they would make the antecedent year's study one horrid grind.

If all the pupils of a class are to be graded from highest to lowest on the results of an examination, probably no device will avail to make the study in preparation for that examination anything else than a delving in the inutilities and incidentals of literature, such as is inconsistent with genuine interest. Here again the Boston way is to be commended. Practically but four grades are recognized. (Three would be enough.) A paper has to be read to determine in which of these four categories it belongs. If the examination is then in the form of an essay, allowing wide swing for individual predilection, its proper estimation is not a process that requires the

teacher to become a microscopic critic in order to detect differences to help in deciding rank. Pupils may easily be wrought to great excitement over the competitions of ranking. But the literary or the disciplinary value of such excitement may well be doubted.

THE USES OF RHETORIC.

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One year ago last spring, at a meeting of California teachers, the subject of English Grammar came up for discussion. During this discussion one of the speakers alluded to the popular distrust of Grammar study, and hinted that some ground for it was not wanting. In support of this position the speaker quoted from an article, by a well known writer, to the effect that great minds could get on without the study of the detail of word habit; for, (I quote from memory) Bede, Homer, Shakespeare, Dante, Milton,—and a long list of other persons whose names I do not now recall,—had not our chances for the study of Grammar, and yet they were such writers as they were. Now, the odd thing about this particular remark was that it was almost in each of the instances cited in opposition to the facts; since records show that in nearly every case cited the study of Grammar had been a part of the educative forces which had made the man; that Dante had, as all know, made a Grammar, and that Milton had not only made a Grammar and published it, but had also taught Grammar in his school-teaching in London. It looked as if the study of Grammar was an essential.

There is another subject quite as much “contemned of the sprightly,” and quite as much ignored by popular scientists, as ever was Grammar. Mr. Ruskin, as he grows older, laughs at himself as in his earlier years accustomed to “put words somewhat prettily together”; and, down to the newspaper squibler, any man who handles a pen and even he who only hires a handler can have his fling at rhetorical flourishes and like vanities.

The answer I would make is the list of the masters of Rhetoric which may be placed in evidence: Aristotle, Quintillian, Cicero. To them I might add De Quincy, Coleridge, Burke, Milton, Chaucer,

Bede, Plato. These men have found their profit in the study of Rhetoric. I think it more than likely that we may likewise find our profit there.

So then I have set myself seriously to ask where indeed we may find our profit in this study of Rhetoric. And in spite of the fact that Ruskin's earlier works, in which he was wont to put his words "somewhat prettily together", are to-day the works of his that the world cares most for, I think we may say at once that the prettily putting of words together is not the sole good result of this study. My object in these remarks is to call attention to the benefit that one may get, and to the method by which one may most probably get it.

We need not delay long to discuss various definitions of Rhetoric. They may all be found in Quintillian and we have made no new ones since his day. Considered in respect to subject matter Rhetoric is the art of persuasion by spoken or written discourse; considered with respect to manner Rhetoric is the art of tasteful expression. Poetry, says the old definition, is designed to please;—a foolish definition of a quality clearly to be desired in poetry. What Dryden and Johnson and Coleridge meant when they used with acceptance this locution we may mean in respect of Rhetoric. It is the art of fit and tasteful, of clear and forcible, of sympathetic and beautiful, expression.

It would seem easy to clothe our thought once found (no small initial difficulty) in clear and pleasing language; but it is, we find, not by any means easy, and for a reason which Mr. Robert Louis Stevenson, himself a master in the art of thought-clothing, puts in his own graceful fashion thus: "The world," he says, "was made before the English language and seemingly upon a different design. To use the difficult instrument at once vigorously, effectively, and gracefully is no light achievement."

We are all familiar with the minor uses of the study of Rhetoric,—the academic uses,—as a drill intended to fit the student to work swiftly and fitly in composition. I would ask attention to the larger values that may come from the study.

I. A SENSE OF FORM.

The study of Rhetoric rightly conducted is fitted, as few elementary studies are fitted, to give the student, first, a sense of form. I say a sense of form but I do not at all mean that the study of Rhet-

oric tends or should tend to mould the students into the form of an accepted model; that is the sense of one form. Formalism, academics, pedantic classifications, have been in the past the one baneful result of rhetorical study. Formalism, voiced by Boileau, echoed by Dryden and Pope, chilled the spirit and contracted the method of the 18th century till a revolution was needed to break it. Formalism embodied in a French academy, set up a fetich of classicism, and the literature of the great French nation, through a whole century, became as dry and dead as a winter field. Even Romanticism, even Victor Hugo, or Theophile Gautier, or Paul de Musset may be counted distinctly better than classicism, than Malherbe, than Boileau, than La Harpe. Formalism has given us good men such as Whately and very bad ones whom I need not name: but in its train have come the subtleties of logic systems, the pedantries of analytic methods, lists of figures of speech, the tables of usages fair and usages foul with which all are familiar. Formalism has made for us what might be called a pigeon-hole Rhetoric, with little neatly labelled compartments, alike in size, in which the good and the bad elements alike rest in peace where we have sorted them. Formalism has given us scores of Rhetorics armed with which one may read Milton, as in my boyhood I regret to say I used to do, and find here an example of anacoluthon, and there a specimen of autonomasia, now meet paradiastole and again epanorthosis, perhaps even exergasia or oxymoron. Find them, sort them, file them away, and perhaps never find Milton at all.

Certainly I do not mean that Rhetoric is of use to give us systems of form, useful as they are. I have in mind something much more elemental and basal than any systematized information, much more fundamental than any knowledge whatever. By a sense of form I mean a habit of perception of form values,—a habit of eye and ear definition, a precisional notation, if you will, of sensation, a capacity for attention to, and definition of, boundaries of words and phrases and forms: accurate sight and accurate hearing. In shortest phrase, I mean the habitual exercise of a trained eye and a trained ear. I assert that such training is part of the result we ought to expect from the study of Rhetoric and a necessary condition for its mastery.

That a habit of accurate seeing and of accurate hearing,—of accurate reading of data, be they printed words, physiological, geometric, physical or geological conditions,—that such habit of accurate reading is an essential element of modern equipment, I need not argue.

The world never needed accurate observers, trained observers, and never sent to the wall inaccurate observers, untrained observers, more than to-day. The one call in every direction,—in science, in literature, in industrial investigations,—is for men with eyes to see and with ears to hear. The man who sees only what he has been told he probably would see, or who hears and repeats without discrimination, finds no one to listen to him when he reports. Absolute clearness of vision is too much to expect; to train the pupil to see somewhat clearly, wisely and fully is within our power.

Now the study of Rhetoric has great advantage as a vehicle for this training of the eye and of the ear, even taking both in the highest sense as the portals of the brain, for the reason that the terms of the equation, if I may so say, are terms of form. The clothing of the thought is a clothing of form—of conventional and absolute form in many cases—of variant but lawfully variant forms in all cases. The spelling of the words is conventionally formed, the grammar is a conventional word habit; in the written speech the grammar is set off for us—rigidly often—by the punctuation; in the spoken speech the punctuation is set off for us by the pauses and the emphatic shadings. There are chords and harmonies and rhythm in the written speech as in music, but the symphonic unity is a unity of law, of related, complete, form-bound law. We cannot study the content save as we study the form; we cannot reproduce or invent any intelligible fragment save as we adopt the form.

But we can, if we will, go much farther and be still dealing with elemental, basal, fundamental, but much neglected, truths. We need to teach the boy not only the use of particular forms, but what I have called a sense of form. In respect of rudiments we need to teach him so well that the misspelled word or the unpunctuated sentence shall glare out to his eye and the mispronounced word, or the half uttered clause, shall blare out to the ear like an untrue color or a jangled chord. Nay more, we need to teach him so that the harmonies of these forms shall be patent to him and the higher values manifest. There is no road to the gaining of the power to see and to know these higher values, save through the training of the eye to see; and there is no road to this training save through conscientious form perfection at every step. If the teacher has only given the boy this form-sense, education in its truest sense has begun for that boy.

I have said the training of the eye and ear. Mainly, I believe, the eye. Not long since I listened to a discussion on the topic of the alleged Decadence of Oratory. It was argued that the impassioned and fervid appeal, as well as the ornate and decorated address, have no longer a place; and a comparison, not favorable to the orators of to-day, was drawn between them and their predecessors. The Clays, the Websters, the Calhouns, not to speak of the older orators, have, it was said, passed away leaving no successors. Gone, it was contended on the one side, because failing sincerity no longer compelled them to speak, and because the methods of training no longer produced them. Gone, it was contended on the other side, simply because no market for the orator's wares now existed, and because the newspaper had stolen his field. The discussion has only indirect pertinence here and I recall it only to note the suggestion made then that it was gone because the training of this generation was strongly tending toward an eye training and that, hence, the orator, appealing to his audience through the ear, had lost ground. Perhaps this may not be the sole, perhaps not the main, reason of the alleged decay of effective oratory; but certain it is that within the last hundred years the common people—the great masses to whom the orator has always appealed—have learned to read and their intellects are reached and their wills stirred through the eye and not mainly through the ear.

There are other indications of an increasing confidence in the delicacy and fineness of the eye training expected from readers, in the dropping of the coarser eye-catchers in printed matter by modern authors. Dickens, writing for the common people of England, fills his page with capitals to compel the eye's attention. De Quincy spots his page with italics. The trained eye of this generation is rejecting both devices. In other ways less gross the same tendency to level away the more obvious and to substitute more subtle distinctions is manifested. For example, in the increase of the symbolic or relational element as opposed to the presentive or objective element in written speech; the inflections drop and the positional value succeeds; the metaphor fades; the picture form shades off into the abstract symbol. I think we may find another indication of this in the distaste for certain of the time-honored forms of rhetoric. The absolute and formal introduction, the strictly ordered method,—book method, we call it,—the good but tedious classicism of all sorts. It is, I believe, because the eye sees more delicate relations, and retains

more clearly positional values, and hence lighter lines of delineation may be used. The ponderous exordium and peroration, addressed to a dull ear, seem heavy and cumbrous as we scan them with the trained and active eye. Book methods we call them: "he talks like a book" we say: I am afraid the far-eyed modern has said farewell to many of these things forever. To note and connote these relations is essential in the study of Rhetoric, and I cannot but think that if the tendency is toward the use of the eye it is a tendency toward accuracy of observation, toward permanency of impression and toward delicacy of perception. The spoken word floats away on the air; the written word remains as a perpetual assistant. Because of the permanence a wise uniformity is compelled and foolish individuality being compelled to find less gross ways of approach learns the ways of wisdom. Because of the use of lower tones and finer harmonies the eye sense becomes at once more delicate and more acute.

If we grant all this, I think we must admit that we have an opportunity in the study of Rhetoric. We have to do with forms used, many of them, for a score of centuries; with results of ages of study of methods of expression, as well as with specialized, and individualized, and modernized forms. From the study of and the reproduction of all these we may cultivate the student's form sense, make him such a master of all these forms that they become his servants.

I have written full soberly of this basal advantage to be gained from Rhetoric study, because I have found such sober consideration needed. Forms are classified, not studied; a form memory not a form sense is created. To this there are two usual replies, not made in words, but in action. The first reply is that drill in form is of little use, because, given the thought, the fitting expression will come. To this, all that I have said is an answer. The second reply is the singular one that the gaining of the form sense is so good a result that no more need be asked. That is, because something is insisted upon as essential, the conclusion is reached that it is sufficient, a logical fallacy exposed as soon as stated.

II. A SENSE OF BEAUTY.

III. A SENSE OF THE IMPORTANT.

The sense of form, though more than a memory of actual forms, is still only an elementary acquirement. To it I would add, if I might, a sense of beauty and a sense of the important. I think we

may consider these points together: and this for the reason that ornament is emphasis and in good writing ornament is appealed to from the start to bring out the important. If we take up any text-book of Rhetoric we shall find that one-half of it is a study of figures of speech; that is, of picture presentation in which the meaning is emphasized by an appeal to the reader's sense of beauty. Indeed, so prominent is this, that because most Rhetorics place this first, has grown up the notion that the development of pleasantness of relation—the putting of words somewhat prettily together—is the whole possible field of Rhetoric. I would not put it first; I would put it last; last, because most far-reaching of the possible results of the study. Coming upward from the mere training of the eye, from the mere delimitation and definition of form and fashion, a student may come to the perception of relation. Going on in the study of relations he comes to the habit of gradation; and finally gains the habit of sensing the essential. If he does he has begun to acquire the sense of the important. I have said that these acquirements may be gained from the study of Rhetoric. I am going to say that they must be somehow gained by the cultivated man. The world is growing subtler, more refined. Side by side with our objectivizing and concreting of method for educating the very young, or the very weak, or the rather lazy, has grown a movement toward abstractness, toward subjectiveness in literature. The great things of the world were always distant and vague and fluid and passing. In our day the lesser things also are in literature voiced forth in a manner at once more ductile, more elusive, and more basal. It is not that the Great Masters of to-day are in any way more simple, more rapid, more plain than the Homers and the Bunyans have been in every age, but that we the readers are coming nearer to them and the lesser writers are finding less gross means for voicing forth such message as they may have to give. But this view may be questioned and I will not press it.

I have thus far treated Rhetoric as an art and I think it not important to discuss if a science—special to it—may or may not underlie it. As it exists for us, it is the associated and related formulization of methods of expression found useful since speech began. I have not tried to show how we may use the methods of rhetorical study to advantage for academic and immediate results; not for the reason that I undervalue the practical and tangible resultants, but because every one here present is familiar with them. Beyond these

valuable and immediate uses I have tried to show that we may find others more nearly universal. These larger values are the arousing in the student, first, of an appreciation of the fact that forms based on real needs come to be permanent; second, that sense forms have relations to each other, and to external needs, easily traced; third, that great changes like the change of method of appeal,—as from the lessened habit of address to the ear and the increased habit of address to the eye,—may change both these forms and the whole form scheme which we may deduce from them; finally, that a form sense or at any rate, a sense of form, in its fullness and variety may be gained. Beyond this I would hope that an exercise of this form sense might develop a sense of beauty and finally a sense of the important. Even Rhetoric, I firmly believe, if wisely studied, may do these things.

*SCIENCE IN SECONDARY SCHOOLS.**

BY A. D. MORRILL, ATHENS, OHIO.

In arranging a course of study with a view of securing symmetrical mental development in childhood and youth, a thorough knowledge of the laws of mental growth is necessary.

With our present imperfect knowledge, the more closely we can approximate to these laws, the more satisfactory will be the results obtained.

Above all things the young should be taught how to study; to collect facts, classify them and draw conclusions. In a word to think.

Few will deny that there is too great a tendency to depend almost exclusively on books for knowledge. A necessity in many cases, it is true, but requiring all the more careful training in observing to avoid errors.

In the experimental method of studying science, the acquisition of knowledge and the cultivation of the reasoning powers are accompanied by the training of the eye to observe, and the hand to record the results of investigations.

* This paper was submitted in the competition for THE ACADEMY prize last March, and received honorable mention from the judges together with the suggestion that it be published.

The great difficulties in the way of satisfactory instruction in science, in the order of their magnitude are: first, lack of time, both on the part of the instructor and pupil; second, either the lack of funds or the unwillingness of school boards to invest the money needed for apparatus; third, the lack of laboratories, and lastly, of teachers who have been thoroughly trained in the best methods of investigation.

To secure the most satisfactory results, chemical, physical and biological laboratories should be provided. In cases where this is impossible, the classes in chemistry and physics can use the same laboratory, although it will increase the labors of the instructor, provided the physical apparatus can be protected from the fumes of the acids, when not in use, by placing it in an adjoining room.

An ordinary recitation room can be used for observational work in biology, if the tops of the desks can be made level.

The expense for apparatus need not be very great, provided the classes can work in sections of twelve. If a larger number are obliged to work at the same time, some of the apparatus must be duplicated.

I know from experience that four hundred dollars will furnish the most essential pieces.

In planning experimental work for the pupils, the greatest care is necessary; first, in selecting those experiments which illustrate the fundamental principles of the subject under investigation; secondly, the directions should be as clear and as few as possible, giving nothing which can be determined by the pupil without unnecessary labor.

The general object of each group of experiments should be stated but not in such a way as to enable the pupil to know beforehand what results he should obtain.

A large proportion of the science text-books describe the results of experimentation so minutely that the pupil with his habits of depending on the book for the acquisition of knowledge cannot see the necessity for making any independent observations.

This defeats the essential object of these studies, for when furnished with the apparatus, the results of the experiments are reported as corresponding to those described in the book, even when they are quite different; and this without any intent to deceive the instructor.

The pupil should keep his note-book constantly at his side, and record the results obtained in his experiments at once. Sketches by the pupil of the apparatus used or of the plant or ani-

mal described or dissected, will give greater accuracy to his descriptions and assist in forming clear ideas. They will also enable the instructor to see at a glance how well the work has been done. The pupil should leave sufficient space after his written description to record any corrections which may be made.

If the pupil obtains unsatisfactory results in his experiments, the work should be done over again, with such suggestions from the instructor as may enable him to avoid mistakes.

Particular attention should be given by the instructor to the teachings of the different experiments, endeavoring, as far as possible, to lead the pupils to draw their own conclusions. Great care will be needed to avoid carrying this too far, trying to get more from the experiments than logically follows.

I find that the greatest danger among my pupils lies in their doing the work mechanically, closing their eyes to the most obvious conclusions. It is, in fact, the great difficulty in all teaching, the majority will not think or use their eyes, if they can avoid it.

Illustrative experiments should be performed by the teacher before the class, special pains being taken to make the object of each clear, and to give time for the pupils to take notes on the apparatus and phenomena.

The pupils ought to study their note-books as carefully as they do their text-books. I prefer to take up the observational work before the pupil studies his text-book on the same subject.

After the text-book has been read on a particular subject, a brief summary of all the knowledge obtained will serve as a review to the brightest pupils and may open the eyes of the others to relationships which they had wholly failed to grasp. I have tried to work from the best known to the unknown, without regard to the order adopted in the text-book used.

It is very essential that the instructor should be with his pupils during their observational work, if much is to be accomplished, going from one to another asking questions and making suggestions, being very careful not to give too much assistance, as pupils are sometimes very ingenious in putting leading questions, if allowed to do so.

The time for experimental work can be secured by giving two recitation periods, instead of one, to the classes in science every other day, when they recite. That is, instead of having any recitation work assigned to prepare for those days, they take the time in

the laboratory. The single recitation period on the other days could be used for recitation, lectures or laboratory work, as the case might demand.

To obtain the best results, training in observation should begin in the primary schools, as every year in which the pupil is sent to books exclusively for knowledge makes it harder for him to deal directly with nature. Although object lessons are given for the purpose of developing the observational powers, there is great danger of their degenerating into talks or lectures by the teacher with little or no training for the pupil.

If the pupil comes to the secondary school undisciplined in observing, considerable time is required to break up his old habits before new ones can be formed.

The teacher sometimes becomes frightened at the slow progress in scientific work, and yields to the pressure which is exerted to force pupils over a subject in a given time, without too many failures at the final examination.

The competent instructor should be encouraged instead of hindered in improving the quality of his work, rather than in increasing the quantity.

In arranging the work in science, I have planned on a four years course, which is the usual time given in the high school and in many preparatory schools.

I would begin the study of natural science with the elements of botany, if it has not been studied already, which is seldom the case, on account of the abundance and variety of the plants which can be secured.

In the country the pupils are in danger of becoming bewildered by the number of plants which can be studied and consequently need a little assistance and a few directions about making a selection. Even in large cities fresh plants can be obtained from the country at a comparatively small expense.

With two recitations a week, during the school year, one with double time, as already noticed, a much broader view of the subject can be obtained than with a greater number of recitations per week for a shorter time.

The second year course would include the study of Physiology, followed, when that is completed, by Zoölogy, the same time being devoted to these subjects as to Botany.

During the third year Physics would demand at least four hours a week. The last year the same length of time, four hours a week could be profitably devoted to Chemistry. If any changes were to be made in the time devoted to the sciences, I should prefer lengthening it in the first and second years even at the expense of the last two.

It is possible that some may be surprised at the omission of Physical Geography, as it is so often studied. The principal reason is that the temptation to make it purely a knowledge study is too great for most teachers to resist, and secondly that the elements of the sciences can be studied more profitably and independently. If this study could be pursued after elementary observational work has been done in the different sciences, it would not only be intensely interesting, but would form an admirable introduction to the study of Geology.

The subjects Geology and Astronomy can be introduced during the third and fourth years as most convenient. The limited time may prevent their being studied observationally.

Those pupils who are preparing for a classical course in college are seldom given any observational work in science, as so much time is required to meet the demands of Latin, Greek and Mathematics. Thus experimental work becomes more and more distasteful, and those who by earlier training in scientific work might have attained success are turned aside to other studies, while in college, through the system of electives. For this reason, although most of the sciences taken up in the preparatory courses must be omitted, or studied in brief courses, for the knowledge, it seems very important that at least one subject should be taken up for the training in observation, as early as possible in the course.

Whenever possible, it would be very desirable to consult individual preferences in selecting the subject for study, but when this cannot be done, Botany furnishes many advantages for this purpose.

It is of the greatest importance that the general plan to be followed in the study of Botany be fully comprehended. We wish to train the pupils to patient and careful observation, and to give them a good general idea of the vegetable kingdom, including not only the flowering plants, but types of all the main divisions of the so-called flowerless plants.

Towards the close of the year, if the pupils wish to learn how to analyze plants, they should not be allowed to use the "manual" to

trace out the name until the plant has been carefully examined in all its details; this will prevent the tendency to guess work, so often noticed.

Those teachers who have taken up this subject in the spring, with the analysis of plants as the principal end in view, may find it a little difficult to change their plans, but I am sure that they will be much better satisfied with the results of their labors, than in the old way.

The difficulties experienced by most young people in following the simplest directions, can be made evident by giving each pupil in a class a small branch of any common tree or shrub, and ask him to write a description in his own words, of the leaves, making sketches of the different parts.

It may become necessary to ask one after another to tell at least one thing that they can see. Working in this way, it has sometimes taken me a full hour to lead the pupils to see for themselves things which at a later period they could take in at a glance. As soon as possible I supply the botanical terms for the parts which have been already described, and require their use in subsequent descriptions. When the difficulties of observing, sketching, and the use of the more common botanical terms have been partially overcome, I give demonstrations of the anatomical structure and physiology of plants, using the compound microscope in many cases. The first demonstration shows the circulation of protoplasm in the stamen hairs of *tradescantia* or in the transparent hairs of the pumpkin. After giving each person material for description, at his table or desk, and a few directions about the adjustment and use of the microscope, they then take turns in examining and sketching the object on the stage of the microscope. Sometimes it is necessary to send the same person back several times before his sketches show that he sees the points desired.

With seven or eight pupils to one microscope it is not difficult for all to examine one specimen during a recitation period, besides describing the naked eye characteristics of the plants given them. After the pupils have become accustomed to the use of the microscope, the instructor can find opportunities for considerable individual work, when the sections of the class are small; but with large divisions more time must be given to general exercises and quizzes.

In a similar manner leaves, stems, roots, flowers, fruits, seeds, buds and bark can be examined. The demonstrations should include the principal tissues of the plant.

The physiology of plants can be illustrated by the simpler experiments, touching germination and the relation of plants to heat and light. The examination of the external characteristics and microscopical structure of typical plants representing the main divisions of the botanical kingdom will make clear the foundation on which the present system of classification rests. The plants used will vary according to the locality, and in some cases it will be necessary to obtain them from a distance, in that case a part of the specimens of each type should be dried and a part placed in alcohol.

As a review of the work done some good text-book like Bessey's "Essentials of Botany" should be used, each division of the subject being taken up with the book, as soon as the observational work is completed. The pupils should be encouraged to make herbaria of representative plants, rather than to secure a large number. The instructor will find Gray's Manual, Strasburger's Practical Botany, and Vine's Lectures on the Physiology of Plants, almost indispensable.

The main object for which the usual course in Physiology is pursued is the acquisition of knowledge. The anatomy, which forms the foundation of this subject, takes up the greater part of the time. The experimental study of physiology requires so much maturity of mind, as well as much knowledge of chemistry on the part of the pupil, that there is but little prospect of its being taken up except in advanced courses.

If the pupils do not have time to dissect a heart, brain, lungs, kidney and eye, these should be repeatedly dissected before them: the instructor calling on the pupils for the names of the different parts and the physiological function of each, as far as it has been learned. The use of a manikin, skeleton and charts will aid greatly in fixing the names and appearance of the various organs. Talks on hygiene will give additional interest to the physiological action of the different parts of the body.

Very much depends on the selection of an accurate and interesting text-book, which can be used for study and recitation, or as a guide for observational work as well. As such I know of none to compare with Dr. Martin's "Human Body, Briefer Course."

After completing this subject we take up Zoölogy, which is being studied, as an observational science, in a greater number of schools each year. The practical work should begin in cold weather, with the study of a rabbit or cat. It is difficult to preserve material for dissection during warm weather, although small animals can be

placed in alcohol. The names of the different organs of the body learned in the study of Physiology will aid the pupil in following simple directions for dissections.

The pupil should next study a pigeon or chicken and then a fish, noting the resemblances and differences. The dissection of a frog by each pupil, together with the demonstration of the anatomy of a turtle, will be all that we can do with batrachian and chelonian types.

The demonstration of the anatomy of the snake will illustrate the power of the different organs of the body to adapt themselves to the shape of the animal.

Little difficulty will probably be experienced in securing crayfish, clams or mussels and earth worms for dissection by the pupils.

The external peculiarities of sea urchins, starfish, sponges, snails and typical insects can then be studied. With the aid of the microscope, sketches can be made of cyclops, paramoecium, hydra, vorticella and amœba; all of which are representative forms.

Each pupil should be encouraged to investigate the habits of some common animal or insect and their relation to others. Pictures of animals will add to the interest of the talks given on groups, the types of which have been studied.

The study of invertebrate animals will be aided by the use of the colored glass models which can be obtained from Henry A. Ward, of Rochester, N. Y. The order in which the different animals are studied will depend somewhat upon the supply, as it will not do to let slip the opportunity of securing good specimens.

The following books will serve as a nucleus for a reference library: Morse, Colton and Packard's *Zoölogies*, Hyatt's *Guides to Science Teaching*, Huxley and Martin's *Biology*, new edition, Jordan's *Manual of Vertebrates*, and Brook's *Anatomy of Invertebrates*.

The idea of energy, as shown in the study of motion, gives the key note to physics. All natural phenomena are to be examined as showing some phase of the relation of matter and energy.

Until within a few years, the high price of physical apparatus has been almost prohibitory to experimental work by the pupils, except in a few well endowed schools, or those in which home-made apparatus was used.

The old idea of experiments was, in many cases, to amuse, judging from the certainty with which we find pneumatic and electrical playthings in most of the cabinets of the older schools.

The present plan is to buy nothing for show and to dispense with the extra finish and mounting, when the scientific efficiency of the apparatus is not injured by such economy.

In this way it is possible to obtain the most essential pieces of apparatus for from two hundred to three hundred dollars.

Some of the experiments require freedom from motion. One way of securing this is to attach the tables to the walls so that they do not receive the motion of the floor.

The first experimental work performed by my pupils is in making measurements of lengths and capacities. After learning how to weigh they determine the specific gravity of different substances, such as limestone, lead, iron and alcohol, and then investigate pressure in air and liquids, capillarity and diffusion. Instruction is then given in the properties and states of matter. The pupil can gain valuable discipline in tracing the ever varying forms of energy in a small number of carefully selected experiments, illustrating the phenomena of heat, electricity, magnetism, sound and light.

The elements of meteorology should be studied, accompanied by observations and the use of the daily U. S. Signal Service charts. The pupil can in this way be taught the facts lying at the foundation of our weather service predictions. The instructor, who has not much time at his disposal, will receive many suggestions in preparing a course of work for his pupils from the descriptive list of experiments required for admission to Harvard University, 1887, supplemented by Trowbridge's *New Physics*, Worthington's *Physical Laboratory Practice*, and Daniell's *Principles of Physics*.

Although many schools are supplied with chemical laboratories, the pupils, and too often the teachers as well, lose sight of the disciplinary value of chemistry in their desire to study chemical analysis. Valuable as this knowledge is in its proper place, it should be subordinated to broader views and higher aims. As an introduction to the study, a few experiments illustrating the various ways in which chemical changes are produced, will give clearer ideas if performed by the pupil than any amount of explanation by the instructor.

In schools with limited means chemistry possesses decided advantages over physics as an experimental study, on account of the ease with which simple apparatus can be devised from glass tubing and old bottles.

After studying the characteristics of the most important gases, typical elements among the solids and liquids are investigated and compared. Finally other members of the different groups are examined and their relationships to the type of elements traced. Thus a broad and firm foundation is laid for future study. At every step the action of atomic forces is noticed, and instead of looking at the properties of the different elements as so many disconnected facts, we see them forming parts of a harmonious whole.

The chemical symbols, which are sometimes difficult for the pupil to learn, can be taught incidentally by writing the name of the element or compound, with its symbol, in the directions for experiment and subsequently using the symbol only.

The annoyance often experienced from gases escaping from the chemical laboratory can be avoided by using a room on the upper floor of the building, and by taking pains to secure thorough ventilation. Those experiments in which the most offensive gases are evolved should be conducted under a hood connected with a chimney, in which there is a good draught.

It is sad to note that the work in science in most of our colleges is largely elementary, mainly owing to the fact that so little science is required for admission, but it is also due, in part, to the imperfect training in this department, often obtained in the preparatory schools.

With a mutual understanding between the secondary schools and colleges, and careful teaching in both, there does not seem to be any reason why the college cannot be relieved from a large part of its elementary work and so gain more time for advanced work.

THE NEW METHOD OF TEACHING PHYSICS.

W. D. MACKINTOSH, TEACHER IN MR. HALE'S SCHOOL, BOSTON.

Steadily has the feeling been gaining ground that the results in teaching Physics were not commensurate with the time and effort employed. Here and there some pioneer, in his discontent with the conventional methods, has devised a set of experiments for his scholars to perform;—bookmakers have compiled lists of experiments based on divers theories, all, however, tending in one direction—to

secure more work and thought on the part of the scholar; an impulse in the right direction,—yet none seemed quite satisfactory in scope and design. Still the leaven was working; at length, somewhat over a year ago, the new method took definite shape in a pamphlet, issued under the auspices of Harvard College, as a preparatory course for admission, entitled, “Descriptive List of Elementary Physical Experiments,” the subject of the present sketch.

It is a course of forty experiments intended to cover many of the elementary principles of mechanics, heat, sound, light and electricity. In mechanics it begins with the different phases of elasticity of solids, then follow, in logical order, elasticity of liquids and gases, density, specific gravity; after that, a series of experiments to determine the laws of the lever, the pendulum, and of falling bodies; also, in their appropriate places, experiments dealing with composition of forces, coefficient of friction, action and reaction, work, etc. Under the subject of heat, beginning with evaporation and testing thermometers, the expansion of solids and gases, specific heat, latent heat of melting and of vaporization are treated. In like manner are developed the simpler laws of light, sound, electricity.

Whatever minor criticisms are possible, the noteworthy fact remains that, in at least three particulars, here is a decided step in advance: the experiments are almost entirely quantitative; the student, as the result of his work, is expected to discover and formulate laws, of which he is supposed to have no previous knowledge; much of the apparatus used is simple. These three points need but little expansion; in regard to the first, in the old form of experimentation the student was simply required to notice what took place, to assure himself that the means employed produced certain qualitative results; here he is constantly called upon, not only to observe different conditions but also to use the measuring rod, scales, or similar means, to find out what quantity of difference exists under the different conditions. An illustration of the second point is the sixth experiment, where the student is given a Mariotte's Law tube and some mercury (a barometer being provided, or the student making his own with but little trouble). He pours any convenient quantity into the tube and makes the necessary measurements; then another quantity of mercury and measures again; and so for a third time. He studies these different results; notices that the air column diminishes as the mercury column increases; that it is in inverse proportion; and he is now ready to give in his own language what he is henceforth to know

as Mariotte's Law. As here described all this does not seem a difficult process, but to a student who has never heard of such a law—indeed to most who have—it is a difficult and educative process; his measurements must have been quite accurate; he must see that there is a real proportion, not an easy matter when reckoning in tenths of millimeters, especially as the total pressures are not likely to bear to each other the easy ratios of one-half or one-third, as the text-books give them; lastly he is to put this proportion into language, a difficulty which will be readily recognized by all who have had experience with minds untrained to do such work. All this is certainly hard work and yet within the reach of the average scholar, fifteen or sixteen years old. A favorable illustration of the third point, concerning the simplicity of apparatus, is the twentieth experiment,—finding the law of falling bodies; Attwood's Machine is commonly used for this, but it is liable to get out of order and is rather unsatisfactory at the best; in place of that, the entire apparatus here used consists of two bullets, with strings to suspend them from screws fixed in any upright surface, a candle being used to burn the connecting string; excellent results are possible with this arrangement. Not every experiment has so simple apparatus as this, but in each great ingenuity has been used.

Certain strong impressions resulting from a year's use of these experiments may contain some hints that shall be of service to those who have not used this course. In arranging the time given, it is of the utmost importance that a period of two consecutive hours shall be given to each of the longer or more difficult experiments; twenty or thirty minutes being spent by the teacher in giving exact directions and anticipating various sources of error; after which an hour to an hour and a half will be none too long for the scholar to make his measurements, record them as fast as taken, and deduce his laws, which should be examined by the teacher before he leaves the class. The advantage of consecutive hours is that if a complicated experiment be not finished before it is left, the slightest disarrangement may compel him to begin anew, wasting the time already spent; again, in the Mariotte's Law experiment and others depending upon atmospheric conditions, the changes of a few hours may render previous observations useless. If there be two or more divisions in a class, time may be saved by giving the preliminary instruction to all at once. As to the number in a division, twelve is as many as can be attended to profitably, since the teacher must keep a careful watch

over each boy, so that he shall not go too far wrong; especially if the teacher carry out the plan suggested above, looking over each student's book before he leaves the room, noting corrections to be made and writing comments upon the recorded observations and deduced laws,—then twelve is certainly enough. In one or two experiments as many as four boys will need to work together; for the others, not more than two need to help each other, and it is better still that each should work by himself when the experiment will permit and there are enough sets of apparatus. Where boys are grouped together, the teacher may see that each does his share of the mechanical work, but he cannot prevent the possibility of one of the group doing the thinking for the rest. Then, too, if the better workers ally themselves, the weaker sets may fall behind and become discouraged. Just how much help should be given and how accurate results should be deemed satisfactory are two serious problems. For at least three experiments, while the student is getting used to handling apparatus and to deducing laws, the teacher is called upon to give constant hints, as even careful students, who have taken accurate notes of explanations given, will be liable to overlook small details essential to success; but after this the pupil should be held responsible for careless oversight and the hints to individuals should lessen rapidly. Accuracy of result will be a much more difficult matter to deal with, especially as the scales, measuring rods, etc., may not be delicate enough to ensure exactness of law; insistence on too great accuracy may, therefore, be discouraging; on the other hand, too low a standard may make his work slovenly and cause him to think that all laws rest on a weak foundation. One method that has been found serviceable is to require the scholar, after he has repeated the measurements, to record that the results point to such a law as probable; thus causing him to bear in mind that, while others may have demonstrated the law, his own result is only an approximation, more or less satisfactory. Only experience, however, will enable the teacher to decide in a difficult case just how much accuracy ought to be expected.

As text-book work is required in addition to the experiments, this course takes more time than any other required for admission to college; it makes greater demands upon the teacher; it is quite expensive from the fact that sets enough of apparatus should be had that all in the division may be doing the same work at the same time, and as each set costs about fifty dollars, six or more sets, for a class

of twelve, would cost three hundred dollars; but that can be much lessened by ingenious scholars making their own apparatus. "Is it, then, worth while?" many a teacher will inquire. If "cramming" for examination, or if rapid advance from the start be the aim, then a decided "No!" must be the answer. Before accepting that as a final answer in all cases it is worth while to examine these considerations: first, it has at least an indirect bearing on the solution of the problem of manual training; second, the pupil learns how to make imperfect instruments serve to secure excellent results; third, it encourages careful manipulation, keenness of observation, power of interpreting results and moulding them into laws; fourth, to those who have taken this course with thoroughness, the text-book work becomes much more profitable and its principles and problems better understood by them; fifth, the interest of scholars is more thoroughly aroused than in the ordinary courses, not infrequently growing to enthusiasm, as they see the reward of patience in gradually unfolding results, quite beyond their expectation.

Those with whom these considerations have weight as tending to produce greater thoughtfulness and a higher standard of scholarship, will welcome the new course as a real gain, and will strive to carry it out even though the obstacles seem very great.

*THE SCIENTIFIC ADVANCEMENT OF THE AGE AND ITS RELATION TO EDUCATION.**

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There are certain questions that seem never to be quite settled. We develop theories and systems and persuade ourselves that now, at last, all the wise people in the world must believe as we do, and presently find, to our surprise, that the world is moving on as it did before. The subject of popular education is one of these never settled problems. The most vigorous thought of a great body of trained educators in this and other countries has been given to it, and at this very day, both theory and practice in educational matters vary as widely as the individuals who are interested in them.

* From an address to the graduating class of the Battle Creek High School, June, 1888.

Nor is it strange that men of clear views and honest judgement should differ so widely on such a question. The personal equation is as strongly marked here as it can possibly be anywhere. Inborn preferences, the influence of teachers at a susceptible period, the use we have made of one subject, the need we have felt of another, are all important factors, and all of us, probably, no matter what or where we studied, wish with the utmost sincerity that we could start at the beginning and "get our education" over again. What mistakes we would avoid, what acquisitions we would make in those studies that we have since found such need of, what wisdom we could impart now to the teachers who signally failed to find out what we were made for!

Alas for all such dreams! The very ones who are most anxious for a perfect system of education have not yet agreed as to how it is to be brought into being. This, however, so far from being an excuse for doing nothing, is all the more reason why the subject should receive our very best thought, and why action should follow conviction.

Without attempting to discuss in all its relations the broad question thus brought before us, I wish to consider the claims of one important element in our courses of study. The position taken is indicated by the following propositions. Modern science deserves, and by right ought to have, as prominent a place in our courses of study as is given to mathematics, language or literature. Its teachers ought to be as well trained and as well paid as others, the facilities for scientific study ought to be as great as those for literary culture, the laboratory ought to be provided for just as much as the library, in short, science ought to be recognized as being of equal rank and value with any other subject whatever in our educational work.

The question is purposely stated in such a way as to avoid, if possible, all conflict with vested interests, and with no desire to enter into a discussion of any opposing claims. There is no disposition to have science supersede or take the place of any other subject. What is asked, and what will most likely be asked until the request is granted, is that science should have its fair and full share of the time, money, mental energy, and—if it is shown to deserve it—the honorable estimate accorded to other branches.

Let us endeavor in the outset to take a calm and dispassionate survey of the position of science in our modern life. The real question by which this, as every other factor of our complex civilization must ultimately be tested, is simply—Has it made life worth more?—not

merely the life of the man to whom it has given wealth and power, but that of the man who works for his daily bread, are we better off, all of us, to-day because of the scientific advancement of the present age?

Let us try to ascertain, first, what science has done and is doing for the direct promotion of the every-day, material interests of the working people, whose lives are at best filled with care and toil, to whom any lightening of their life-long burden is a welcome relief. Recent magazine articles have been giving a disheartening view of the situation. Among other things, it is seriously maintained by some who have given the subject careful study that the rich are growing richer and the poor poorer; that the distribution of the wealth of the nation is continually becoming more unequal, and that discouragement and bitterness on the part of those who are not receiving their just share are the inevitable results.

Without stopping to discuss fully the question thus raised, or attempting to abate in any degree its great importance, it may be said at once that its consideration does not affect the point immediately at issue. We are not, at this moment, so much concerned to know just what proportion of the wealth of the nation each man is allowed to call his own, as we are to ascertain whether his lot is essentially better now than formerly; it is by this principle, not by the accumulation of property, merely, that we are to judge.

And with this statement of the case, there can be no hesitation in answering, immediately and emphatically, that life is—for the great body of our people—a better thing than it used to be, and that the progress of modern science is one of the great, if not the greatest, of the causes contributing to this result.

It is no light thing, in the struggle for existence, that science has been applied, with most encouraging results, to the production and consumption of food. "To common laborers," says Mr. Atkinson, "their food constitutes sixty per cent of the cost of life—if we can show them how to maintain themselves in full vigor at a cost of thirty or forty per cent of their ordinary income, we shall have done a good service," and this has already been so far carried out as to make it possible, for one who is willing to give any attention whatever to the subject, to select and combine the various food materials of the market in such a way as to obtain the maximum food value at a minimum price.

In various ways Sanitary Science has, year by year, improved the conditions of life—for rich and poor alike. The American Public Health Association has caused to be distributed throughout the country plain and practical suggestions for healthy homes, where and how to build, how to heat and ventilate and keep clean. If the people still “perish for lack of knowledge” it is not because enlightened scientific thought has not concerned itself for their welfare. From the same Association—to mention only one of the numerous sources of the dissemination of this kind of knowledge—have been sent out pamphlets on the sanitary conditions and necessities of school life, on the means of preventing infectious diseases, on the preventable causes of disease, injury and death in American manufactories and work shops, and the best means of preventing them. Life insurance and protective organizations of various kinds and names have lessened the risks and suffering attending sickness and death, and economic science, if it has not yet solved the problem of the equitable distribution of wages, is nevertheless leaving no stone unturned to secure finally, to labor and capital alike, each its just and right proportion of the accumulating wealth of the nation.

Modern science has *not* been unmindful of those who all over the land and the world are engaged in the hand to hand struggle for bread. If it has not made the hours of labor as few or the pay as great as all would like to have them, it has shown how to have better food and more of it, better and cleaner homes, a better physical organization and less danger of dropping out in the race without provision for the family. From the material standpoint alone, science has been a most effective agency in the improvement of the conditions of existence, and in this good result, all—in every walk of life—have shared.

It is unnecessary to speak at greater length of the changed conditions under which we live compared with those of an earlier period, but it is desirable that this changed state of things should pass clearly before our eyes and that it should be distinctly understood how great a part of this is due to the development and applications of science. Contrast, as graphically pictured by a modern historian, the newspaper of a hundred years ago, slowly making its way in the course of a week, from Boston to New York, the cumbrous, expensive, and uncertain transportation of mail, the danger of travel that led one before starting out “to consult the almanac and make his will,” the ignorant and irresponsible practice

of medicine, the lack of mechanical contrivances in farming and manufacturing, the scarcity of books, the narrow provincialism resulting from the lack of the means of communication, contrast all this with the present; the flashing of thought from one continent to another, the scientific prevention of disease, the multiplication of books, the introduction of new forms of machinery in bewildering number, these and much, very much, more, are direct and overwhelming testimony to what science has done and is doing for the material prosperity of the country.

There are other ways, however, in which the progress of science has affected us, less palpable but none the less real. The thought of the age is undergoing profound modification. The great principles that have been established during the last half century are gradually working their way into the every-day life and thought of the people. It may at first appear of little moment that an English naturalist should devote years of labor to the comparison of species and varieties, giving his time to such things as the color of a dog or the shape of a pigeon's tail, but there is not to-day a single department of human thought and belief that has not been penetrated to the very center by the theory of evolution. Whether this is an occasion for satisfaction or regret, the fact remains that biological science is in the hands of those who accept this view of life, that psychology and sociology have made their greatest advances under its influence, and that religious belief is slowly but surely adjusting itself to views of the universe unfamiliar to the fathers.

It is, then, not only the physical and material results, but the stupendous social, intellectual and moral influence of the scientific activity of the age that forces itself upon us in our study of educational matters. Factors like these cannot be ignored. Somewhere and sometime the students who pass through our schools will busy themselves with these problems of life and mind. Shall they be left to work them out alone or shall they receive the help of those who ought to be their guides to quicker and more complete apprehension of the truth? It would seem that there can be but a single answer, and yet it is still a debated question in some quarters whether better provision shall be made for scientific teaching, whether there is room for it in the curriculum, and whether it will pay for what it costs. The question thus raised leads us to a consideration of the educational value of science itself.

In every discussion of educational values, it should be borne in mind that "we live in the present and not in the past." Human life and character change as certainly as their environment. Let us then raise the old question once more—"What knowledge is of most worth?"—not for a Chinese student, aiming through an almost inconceivable stretch of the memory at promotion in civil service, nor for the prospective heir of an English estate, who goes to Cambridge or Oxford with the understanding that he is to be made a gentleman, if, as is likely, it is found impossible to make him a scholar,—but right here and now, with the surroundings as we find them and our people as they are—what knowledge is of most worth? what sort of education ought we to give our Michigan girls and boys?

It is now something over a quarter of a century since Herbert Spencer discussed this question and, with the utmost clearness and directness, led to the irresistible conclusion that, for the leading forms of activity that constitute human life, a knowledge of science is of higher value than that of other kinds of knowledge. Various attempts have been made to set aside this masterly and convincing argument, but I am not aware that any of them have been wholly successful. It is as true to day as when he wrote that a knowledge of physiology and hygiene is of the very first importance as teaching the proper care of the physical organism and as a means of avoiding the mistakes and risks that so often impair health and endanger life, that the principles of the physical sciences are in such constant use in every form of industry that practically everybody "has a direct interest in understanding something of the mathematical, physical and chemical properties of things," and still more now than then, is it true that in the learned professions a creditable amount of scientific training is of imperative need.

The applications of science have so extended themselves into our every-day life, that ignorance of them is equivalent to failure. What of the lawyer who does not have the capacity at least, through proper preliminary training, to work up a case in which railroad, telegraphic, mining or manufacturing interests are involved? or of the physician whose limited knowledge of the fundamental facts of biology gives him no adequate conception of the capabilities and limitations of the human organism? or of the legislator who has failed,—again through lack of scientific training—to understand the problems that immedi-

ately and profoundly affect the financial and commercial interests of the nation?

It is true that all these are material interests, but our life is very largely made up of just such interests, and the time has perhaps not been lost if it has been clearly shown that, so far as its practical bearing is concerned, scientific knowledge justly claims a place in our educational work.

It is, however, the disciplinary value of science that must chiefly occupy our attention. It is here that the real question centers. We are not training our young men and women primarily for the trades and professions which they are to enter, we are training them for what there is in themselves, for the best they can be and do, for the highest development of ideal manhood and womanhood, for patriotic and intelligent citizenship, for all that makes life most worth the living.

Now it has been claimed, strenuously and persistently, that, for the accomplishment of this object, other than scientific training is preferable. The great disciplinary value of classical study, for instance, has been insisted upon as specially adapted to the cultivation of the memory and the faculty of discrimination, as familiarizing the student with the life and habits of thought of the best representatives of ancient civilization, and, in short, as ministering to the "desire for conduct and the desire for beauty" which fills so large a place in Mr. Mathew Arnold's conception of education.

Let us examine the counter claims of scientific education. These are by no means new but they need repeating and enforcing.

1. In the first place, judging from personal experience and observation, both physical and biological science demand a concentration of the mental energies such as is not called for by literary and linguistic studies. One indication of this is the fact that many successful students of language find themselves unable to follow out a continued demonstration in physics, from sheer lack of the mental strength required for the prolonged exercise of the faculties involved. There is a certain concentration, a mental grip, what Newton meant when he attributed his success to the power of fixing the attention, that is not called for nor developed in the pursuit of literary studies to anything like the degree that it is in physical science; and it is exactly this strength, this power of sustained and vigorous effort, that is absolutely essential to every mental worker. Personal power is not the vague, indefinable something that it is often fancied to be.

Analyzed into its elements we shall find chief among them this very capacity for strong and prolonged exertion, and searching through the curriculum we shall find no other form of mental discipline better suited to produce it.

2. In the second place, the power and habit of observation are developed far more certainly by the study of science, combined with graphic representation, than by any other means within our reach. It is believed by some that good observers are born, not made, but so are poets, and we do not on this account consider the study of poetry unnecessary. If one is not born a poet, it is well, none the less, to cultivate his poetic instincts, and if one has not come into the world with the observing faculties of an Owen or an Agassiz it is all the more reason why his eyes should be opened and he be taught to see what there is in the visible creation around him. Most men see only a part of what they look at and do not see that very clearly. The world is full of misapprehension and misstatements arising from errors of observation. There is, of course, no golden rule by which such perverted vision can be corrected, but there is a wonderful change in this respect when the student is compelled day by day to look for himself and tell what he sees, until presently there is a change from guess-work and make-shifts and uncertainty, and the crude school-boy passes insensibly into the accurate scientific observer. Nor are the æsthetic and purely intellectual results of such training of little value. The keen eye and quick perception of Burroughs and Thoreau form a large factor in their vigorous intellectual life, and the exquisite charm of Hamerton's writings comes quite as much from his close observation of nature as from his great knowledge of art.

3. Important as is the training just referred to, it is still more essential that education should be of such a kind and so directed as most perfectly to develop the judgement. That mental balance, so essential and yet so rare, with which a workman becomes a philosopher and without which a philosopher becomes a fool, by what form of discipline can it best be developed? Created it cannot be, but wonderfully expanded and strengthened it may be.

It would be difficult in the whole list of things that by common consent deserve a place in our courses of study, to find one that more imperatively demands the possession and exercise of a calm, steady, judicial spirit than does the proper study of a natural system of classification. One of the most thoughtful students of our edu-

cational problems says: "When George Eliot, one of the foremost philosophic minds of the age, was finding pleasure in learning the names of the plants of Ilfracombe as 'part of a tendency that is now constantly growing in me to escape from all vagueness and inaccuracy into the daylight of distinct, vivid ideas': when John Stuart Mill was botanizing over the moors of England and turning aside at Avignon to tramp up the bed of the Durance collecting—of all things—willows! are we to suppose for a moment that these two eminently clear-headed persons did not know whether they were wasting their time or not? Nay, so far as Mill is concerned, we know that he made a very considerable herbarium, doing the work with his own hands, and we may safely infer his motive from what he says in the *Logic*: 'The proper arrangement of a code of laws depends upon the same scientific conditions as the classification in natural history; nor could there be a better preparatory discipline for that important function than a study of the principles of a natural arrangement, not only in the abstract, but in their actual application to the class of phenomena for which they were first elaborated, and which are still the best school for learning their use.'"

Asa Gray was accustomed to say that "species are judgments," and the clear discrimination of this prince of scientific workers, that seemed only to grow more keen and searching as the years passed by, testify to his breadth of view, clear insight, and sound judgment, that if not created, were at all events greatly enlarged and strengthened through many years of constant practice in the comparison and determination of species.

4. The "instinct for beauty" is rightly placed, by a great advocate and representative of literary culture, side by side with the "instinct for conduct." The instinct for natural beauty is born with us and duly cultivated it leads naturally and easily into the domain of moral beauty. But if it is necessary for a student of art to bring himself into direct and continued contact with the works of the great masters, before their intrinsic merits are felt by him, still more is it essential that he who would feel the perfection of the material universe should know its laws and see for himself, and not through the eyes of another, their exquisite harmony and beauty. "St. Bernard is so dead to outer impressions that he travels all day along Lake Geneva and then asks where the lake is, while Linnaeus is so sensitive to the beauties of nature that when he beholds a promontory stand-

ing boldly forth and teeming with beauty, he can not help falling upon his knees and thanking God for such a world."

5. It was that rare teacher, Dr. Arnold of Rugby, who said that he wanted his boys to study Greek and Latin because he would have them know the Greeks and Romans. It is not the least of the reasons for our boys studying science that it is the surest means of bringing them to know the men of science. Few men have been more persistently and completely misunderstood than Charles Darwin, yet few lives have been more instructive than his. Even from a purely literary standpoint, his works would repay one for learning science for the sake of appreciating what he wrote. As one has lately said of him: "Darwin was always pursuing an idea, always tracking a living, active principle * * * the principle of organic life, following through all its windings and turnings and doublings and redoublings upon itself, in the air, in the earth, in the water, in the vegetable and in all the branches of the animal world, the footsteps of creative energy; and we follow him as we would follow a great explorer, or a general, or a voyager like Columbus, charmed by his candor, dilated by his mastery, * * * the mere science in him is so perpetually overarched by what is not science but faith, insight, imagination, prophecy, inspiration, * * * his love of truth so deep and abiding, and his determination to see things, facts, in their relations and as they issue in principle, so unsleeping, that his demonstration becomes almost a song."

It is well to know at first hand something of the real motive of such a life, well for any student to catch the spirit of working with the simple love of truth for truth's own sake, without display and without restless ambition, patiently coming into a better knowledge of eternal order and, unconsciously it may be, drawing nearer to its source.

6. This thought suggests what is perhaps the most important result of the study of science that still remains to be considered. No literary culture, however extended, can compare with scientific training for begetting in the soul a love for truth. I approach this part of the subject with hesitation but not with fear. There are those who look upon science with little favor and even with positive distrust, because it seems to have been undermining things that are sacred, hopes that are dearer than life, and aspirations not limited by what is present and visible but taking hold of the unseen and eternal. Or, instead of distrust and uncertainty, there comes the specific

charge that the representatives of scientific progress have ruthlessly pushed on until not only religious thought but even public morals are in danger, and good men every where are and must be profoundly interested in the outcome.

Let us see what scientific study is really doing in this respect for those who are fearlessly and honestly pursuing it.

I spoke of the love of truth that it engenders. The student of other subjects becomes accustomed to appeal to authority and to expect differences of judgement even on the most important matters. But how totally different is this from his experience in scientific work. He is brought here face to face with absolute, unvarying law. Here at last is authority that no one can question. He is now in the presence of eternal order. Effects follow their proper causes with the certainty of fate. He learns not to trifle, to work sincerely, and his apprehension of truth becomes constantly more clear and strong. He sees the inevitable penalty of transgression. He has *heard* before that "whatsoever a man soweth that shall he also reap," now he *knows* it. Is this kind of study immoral or irreligious in its tendency? A student of biology sees the dwarfing effects of parasitism, the shrinking away and even obliteration of unused parts, the cramped and miserable existence of an organism that has failed to make use of its opportunities, and, on the other hand, the extraordinary development, the wonderful unfolding of organs and faculties that are constantly put to their highest use. If he is wise he will learn the lesson that is every day set before him. He may, in his zeal for the advancement of science, forget himself and suffer the inevitable penalty, just as Darwin left the religious faculty uncultivated until at last it was gone. There is this tendency on the part of scientific workers to forget the spiritual and deal only with the material, but there is the same tendency everywhere, and it is to the fearless and reverent workers in science that we have to look more than to any other class of men for help to overcome and correct this tendency of the age. There has been many a light of the world of scientific thought whose pure life and simple faith have shown how well these work together. Of one of these it has been said that his religion "was implied in the eddies of his blood and in the tremors of his brain; and however its outward and visible form might have changed, Faraday would still have possessed its elemental constituents—awe, reverence, truth and love." Of one of the greatest and best of our own interpreters of nature, Dr. Asa Gray, who has the present year

"carried his riches with him, beyond the splendid stars," his memorialist writes: "He brought men close to Nature and to God, and made us feel—the child and the man—that the kingdom of God is among us. * * * He believed. He knew the constancy of truth and he liked the creed which the faith of centuries has hallowed."

I have perhaps dwelt at too great length on this head, but it has been with the conviction that if men go astray in the pursuit of science it is bad philosophy or a bad life, not bad science, that is the cause of it.

If, then, the proper study of science not only gives the knowledge that is most necessary for the various activities of life, but is also pre-eminently adapted to give the strength essential to sustained mental effort, if it is specially serviceable for training the observation and developing the judgment and imagination and instinct for beauty, if it is calculated in the highest degree to inspire a reverent love of truth and to enforce obedience to universal law and order, it would seem that its claims to a fair share of the time that our students spend in the public schools are sufficiently established.

Let us now look into the Michigan schools as they are conducted at present and compare what is done in this and in other lines of study. To one who received his education in one of these schools twenty or twenty-five years ago, and has not been brought since into immediate personal contact with their every-day life and workings, a careful examination of what is going on in the Michigan high schools to-day would be a revelation. There has been an extraordinary development of educational ideas and a most fruitful and encouraging progress in the adoption of right principles and methods.

In these later years the classics especially are, as a matter of fact, taught in such a way in our schools as to afford discipline and culture of the highest order. Our teachers of these languages are enlightened men and women who have set themselves to see what can be done with them as an instrument of the higher education. They are doing scientific teaching instead of keeping the dreary treadmill going that for so many years held undisputed sway in this realm of learning. If any one supposes we are here and now, in this State, perpetuating any such cramping and narrowing system as has been the ground of bitter and just complaint in England, it is time that he was undeceived. The classical teaching in Michigan to-day is beyond the reach of hostile criticism.

If we turn from this to the closely related departments of modern languages, literature and history, nearly the same high development of the teacher's art is apparent. The student is brought into direct and living relation with the authors of the best that has been thought and written. He catches their spirit and gains an insight into the temper of the age in which they lived and wrote, he becomes himself an intelligent critic of thought and expression, in other words, he is being broadly and thoroughly educated where a few years ago he was hopelessly learning pages of names and dates and "examples of style" of writers of whose personality and influence upon their age he had but the most vague conception. Whoever is educated to-day in one of the better public schools of this State has no occasion, as far as these studies are concerned, to wish that he had lived in any other community or at any other time.

Coming now to the sciences, it is certain that in a few of our schools they are taught in such a way as to secure a large share of the benefit that it has been claimed they are capable of yielding. But this is by no means universal, nor can it be fairly called general. What, then, is needed and how can it be accomplished?

In the first place, if science teaching is ever to hold a respectable position in our courses of study, and become an acknowledged instrument of discipline equal in value to other kinds of instruction, we must once for all cease to magnify its office of imparting useful information, and regard it mainly as a means of training, educating, our students. That it has a practical value as great or greater than that of other studies, has been plainly enough shown, but this does not constitute its chief claim to our consideration. The toast of the Mathematical Society of London "Pure mathematics, may it never be of use to any man," is not so far out of the way. It is a recognition of the pleasure and duty of assiduously cultivating things that are valuable simply for their influence on the man himself. It is largely because the sciences have been so generally classed under the head of "practical" studies, and it has been understood that they were to be pursued for the use that could be made of them, that the results of their study have so frequently disappointed those who had formed a high opinion of their value. They have been fancied, like the makeshifts known as commercial courses, to be capable of fitting a young man for the active duties of life in less than half the time it would take along the old way, and when the young man comes out of such a course, with his scraps of informa-

tion and his untrained judgment, scarcely better fitted for the work of life than when he began, and often intolerably conceited in the bargain, it is no wonder that this sort of learning falls into disrepute. The advocates of classical training have consistently declined to bid for popular favor on any such basis. They have made no pretense to furnishing practical knowledge, but have held on steadfastly to their one avowed purpose of training the man, and those who would see the sciences take the place in our public schools to which their importance entitles them, need to learn wisdom in this respect. Let us abandon, once for all, the attempt to teach science with "useful knowledge" as the main object, and make it, what it is pre-eminently fitted to be, a principal means of training to exactness of observation, independence and carefulness in forming conclusions, judgment in weighing evidence, and in short those habits of thought and those mental characteristics that belong to the well balanced man.

This will involve going at the whole matter of science teaching in another way. Instead of the recitation room there must be the laboratory, or rather the school room will become a laboratory, and in it the student will learn for himself by making his own observations and performing his own experiments, just as he learns afterwards in real life, only much more rapidly, that clumsy expedients are always costly, that half-hearted work is in itself a failure, that one can never lay his foundation too securely, and that thorough honesty in spirit and method, with an indefinite amount of down-right hard work, is the absolute and essential condition of progress. It is this "scientific state of mind and intellectual temper," with what some one has called wakeful attentiveness of the senses, and scrupulous sincerity of mind, rather than the acquisition of any number of facts, that furnishes the best preparation for meeting the real emergencies and difficulties of later years.

In the second place, the right of science to a place of equal honor and influence with literary studies in our schools ought, once for all, to be fully and heartily recognized, and this should be followed by such action as good faith demands. Some twenty years ago an English writer described a state of things in England that has not been altogether without a parallel in other quarters of the globe. "No one," he says, "can study the reports and lectures on Science in Schools without failing to be struck with the peculiar attitude of principals and teachers towards science. They admire it excessively,

they are very anxious to introduce it into their schools, they look forward to the time when it will have become an important element in national instruction; but at present they wish to have nothing to do with it. Their respect for it is mingled with fear, and though they are almost persuaded to adopt it, they beg to be allowed to put it off to a more convenient season." * * * *

"Many speak of it as if they were willing to sacrifice their own convictions to public demands, and to introduce it into their curriculum as a subsidiary study, but as if they thought that to substitute it for other kinds of learning, and to lean on it as on a chief means of general culture, would be to throw away all hope of training the young English intellect to habits of sound and vigorous thought." There are evidences that this attitude, which is by no means unknown in this country, is giving way to an honest disposition at least to give to the sciences a fair chance with other branches of study. We are waiting now to see this really carried out, to see, in the words of the same writer, science allotted the same honor, the same emoluments, and the same amount of teaching power that are now bestowed on classics and mathematics. Nothing short of this will meet the case. The teacher of science, if prepared for his work as it waits for him to-day, has made a larger investment of both time and money, than the teacher of mathematics or the classics. He must work a greater number of hours, for experiment and observation take more time than learning a lesson out of a book. He finds day by day, his resources taxed to the utmost as he undertakes to develop the scientific spirit in those who have thus far drawn all their knowledge from authority, in short, it means more every way, more of experience, knowledge, tact, energy, all that goes to make up the successful teacher, to be a good teacher of science than to be a good teacher of most of the subjects of the curriculum. There is no good reason why any of these subjects should be crowded into the background to make room for science, but there is every reason that a fair and equal chance should be given to all.

There may be those who will object to any such practical recognition of the claims of science on the score of expense, feeling that our public schools are already a sufficient burden and that nothing more should be added to the already heavy taxes of the community. To this there are two answers: In the first place, the necessary equipment for genuine scientific work costs less now than the expensive apparatus that used to be purchased for simple exhibition or occa-

sional demonstration. It is already a part of the preparation of a science teacher to be able to devise and make for himself, and to teach his students how to make tools and apparatus for every day use.

For science teaching it pays on the score of economy to employ a teacher trained in science, and to give him something to work with. No lavish expenditure is called for, but *something*, a reasonable allowance year by year, and it is safe to predict that no investment ever made in educational work will yield a surer or larger return.

In the second place, it is perfectly safe to make this investment as far as public sentiment is concerned. The strong common sense of the community has been waiting patiently for years to see this step taken, and would hail with satisfaction measures that promise a proper and just division of time between literary studies on the one hand and scientific training on the other. People are willing to trust the high school to give the needed training, but they ask that all through its course of study there shall be distinct recognition of the fact that nine out of ten of their boys are going out into the world, and not into the pulpit or the professor's chair. The fact is frequently commented upon that all through this State, Latin is a popular study while Greek is not, and this temper of the public mind may well be considered in all our plans. It means simply this—that the body of our people desire their children to have all the literary culture that the time given to their school days will permit, but that they are decidedly and intelligently opposed to exclusive literary culture unbalanced by proper scientific training.

Lastly, if the benefits that ought to follow a better provision for scientific teaching in our schools are to be realized, it is essential that we should learn to do one or two things well instead of doing a little of everything. There is still a perverse tendency in too many schools to dabble in half a dozen sciences instead of settling down to thorough and exhaustive work in any one of them. The Fourteen Weeks Courses, with the superficial outside glimpse at the things discussed in them, and the conceit of learning without the substance thereby engendered, have done much to bring these subjects into disrepute. Let the number of sciences studied and taught in any school be remorselessly cut down, and then let all the time and energy formerly distributed among the many be given to the few, and there will be a change for the better.

But however we may value this or that form of instruction, let it most of all be realized that "all knowledge is worthy," and that every earnest intellectual effort is a step towards a higher plane of living. However important, or even essential, it may be that the elements of a curriculum should be wisely selected and given their due proportion of time and thought, still more indispensable is it that this fundamental truth should receive full acceptance, that whatever turns one's thoughts and energies from the all-engrossing cares of life to his own better self and the higher interests of his fellow men, away from what is material and temporal to the intellectual, spiritual and eternal, is a rare gift and blessing. This is what is offered in these public schools to-day. May their foundations ever stand unmoved! May this good gift of the fathers of our commonwealth be handed down to other generations through all time to come!

*NOTES ON TECHNICAL EDUCATION.**

BY DR. ROBERT H. THURSTON.

II.—THE NEED OF A SYSTEM OF TECHNICAL EDUCATION IN THE U. S.

Having considered briefly the need and the purpose of technical education, we may now take up the examination of the condition of the United States and the needs of our own country in this direction. These are very briefly treated in the reports from which these articles are abstracted, as is the necessity existing for the prompt establishment of a body of schools, not only ample in number and well endowed, but systematically related in such manner that the most perfect systematization of their work may be effected, and that every student may find ample accommodation and precisely that kind of instruction which he needs and most earnestly seeks. In a report prepared by the author of these papers, at the request of a Commission appointed in 1877, by the State of New Jersey "To Devise a Plan for the Encouragement of Manufactures" in that State, he presents his views as below. The plan thus suggested was endorsed

* Abstracts from the unpublished reports of Dr. Thurston, upon the work of the Sibley College of the Cornell University, etc. Continued from our September issue.

by the commission, and in part adopted by the State Legislature, a Bureau of Labor Statistics being formed, and all legislation since that time having been as far as possible made to support the system of political action advised. The educational scheme forming a part of this general plan was as follows :† —

For many years European nations have been steadily, systematically and intelligently carrying out a policy, which is as admirable as it is successful, looking to the encouragement and support of all branches of industry in the most effective possible way, by rendering the artisan and the laborer more intelligent and better informed; not simply offering him general knowledge through a system of general education in the common or public schools, but teaching him the essential principles which underlie the practice of his art, and supplementing in trade schools this directly practical education by the still more practically useful and immediately applicable knowledge of the manipulations peculiar to his work. The only way in which to compete with the conditions introduced by this statesmanlike and most enlightened policy is evidently the adoption of a similar policy, and, if possible, a more complete and extended application of the methods dictated by it than has been elsewhere attempted. As technical education and trade schools adapted to nearly every important branch of industry have long formed a part of the European system of aid to manufactures, it is evident that successful competition in future years is not likely to prove satisfactorily successful unless the task of overtaking our competitors in a race in which they have many years the start of us, and in which they have already acquired every advantage that such a start and the gain of experience derived by the progress of a full generation can give, is very promptly commenced and very energetically and intelligently prosecuted. Our people are, and always have been, largely dependent upon artisans imported from abroad for aid and direction in every branch of industry in which extraordinary skill, taste or acquired knowledge of technical details is demanded. We can only become independent by supplying ourselves with the means of similarly training our own workmen.

A "plan for the encouragement of manufactures of ornamental and textile manufactures," to be effective and to be of lasting ben-

† Report of the New Jersey State Commission appointed to devise a Plan for the Encouragement of Manufactures of Ornamental and Textile Fabrics. Trenton, N. J., 1878.

efit to those industries, must include, primarily, some practical scheme of education and of industrial instruction and training that shall render the working people engaged in those branches the equals, if not the superiors, in intelligence, skill and knowledge, of the same class in any other country. Such a plan must include a general policy of encouragement of every effort to introduce new divisions of work and to diversify existing established industries. *No restricted scheme or narrow policy can be of great or of permanent benefit.* A general plan, including such modification of the early education and the later training of the rising generation of artisans and laboring people as shall especially prepare them for a life of intelligent and prosperous labor in the departments to which the attention of the Commission has been particularly called, will, with little modification and at but slight additional cost, equally well assist in the development of all branches of domestic manufactures and of our agricultural interests as well. It would also be impossible to distinguish, in the early training of youth, those who were ultimately to adopt the pursuits that were the objective of the preparatory work of any certain kind from those who were to follow an occupation requiring a somewhat different preparation. It would seem, therefore, best to endeavor to devise a plan by which the studies and training of youth should be, as completely as possible, introductory to all the industries, and which should defer a special training to be given in trade schools to a later period when the direction in which the pupil is to work through life has been fully determined.

Such a plan, to be perfectly successful and most completely effective, must evidently aim at making this early training available to the people of the State to the full extent to which such training is given elsewhere to-day, or is likely to be given in any competing district during the future. It is only when our whole population shall have been made as intelligent, as well informed and as well skilled in every department which bears upon the industries, existing and prospective, of the State, as any other people can be, that we shall be able to rely upon securing the advantages due to our natural position and resources.

As will be presently seen, such a plan, to be satisfactorily complete, must comprehend:

(1). A common school system of general education, which shall give all young children tuition in the three studies which are the foundation of all education, and which shall be administered under

compulsory law, as now generally adopted by the best educated nations and States on both sides the Atlantic.

(2). A system of special adaptation of this primary instruction to the needs of children who are to become skilled artisans, or who are to become unskilled laborers, in departments which offer opportunities for their advancement, when their intelligence and skill prove their fitness for such promotion, to the position of skilled artisans. Such a system would lead to the adoption of reading, writing and spelling books, in which the terms peculiar to the trades, the methods of operation and the technics of the industrial arts should be given prominence, to the exclusion, if necessary, of words, phrases and reading matter of less essential importance to them.

(3). A system of trade schools, in which general and special instruction should be given to pupils preparing to enter the several leading industries, and in which the principles underlying each industry, as well as the actual and essential manipulations, should be illustrated and taught by practical exercises until the pupil is given a good knowledge of them and more skill in conducting them. This series should include schools of carpentry, stone cutting, blacksmithing, etc., etc., weaving schools, schools of bleaching and dyeing, schools of agriculture, etc., etc.

(4). At least one polytechnic school, in which the sciences should be taught and their applications in the arts indicated and illustrated by laboratory work. In this school the aim should be to give a certain number of students a thoroughly scientific education and training, preparing them to make use of all new discoveries and inventions in science and art, and thus to keep themselves in the front rank.

(6). A system of direct encouragement of existing established industries by every legal and proper means, as by the encouragement of improvement in our systems of transportation, the relief of important undeveloped industries from State and municipal taxes, and even, in exceptional cases, by subsidy. It is evident that such methods of encouragement must be adopted very circumspectly and with exceedingly great caution, lest serious abuses arise.

(7). A system of general supervision of the industries of the State by properly constituted departments of the State Government. This system should comprehend, perhaps, a Bureau of Statistics, authorized, under the law creating it, to collect statistics, and information relating to all departments of industry established, or capable of be-

ing established, in the State, and to publish such information and statistics in circulars for general distribution, and in a report to be made to the State Legislature, annually, with the Governor's message.

The extent to which the measures here proposed may be expected to benefit the people of the State will, as a matter of course, depend upon the completeness and thoroughness of the plans adopted in carrying them into effect, the intelligence and knowledge as well as the energy of those to whom their prosecution is entrusted, and the capacity of the people to comprehend and to take advantage of the opportunity for self-improvement thus offered them and their inclination to avail themselves of it.

The extent to which the preliminary scheme of education adapted directly and peculiarly to the wants of the children of the artisan may be put into operation and the promptness with which the people may be enabled to profit by it will be determined wholly by the promptness with which legislators frame and school authorities enforce the required legislation. If this is done in our own State as in the State of Massachusetts, the delay will not be great, although even Massachusetts is many years behind the leading states of Europe.

The foundation of trade schools can only take place through the direct action of the State government, and at the expense of large appropriations from the treasury of the State. The promptness and liberality exhibited in their establishment will be a measure both of the intelligence and enterprise of our people and their representatives, and of the magnitude of the benefits, absolute and comparative, to be gained by their foundation. In this matter nearly every European state of any respectability and importance and nearly every city of considerable magnitude is far in advance of us and possesses a consequent advantage which even such prompt and determined action on our part as distinguished Great Britain when,—nearly a quarter of a century ago,—her people first awoke to a consciousness of the fact that she was as far in the rear as are we to-day, cannot soon compensate. With all Europe a generation in advance of us, it is sufficiently evident that we cannot act too quickly or too earnestly. All the undeniably great advantages possessed by a new country, in mineral resources, large cultivable areas of rich soil, a wide range of climate and a system of government which awakens every power, mental or physical, of a people, cannot avail in a struggle with nations still richer in both knowledge and wealth and possessed of every

facility for their immediate utilization by the coming generation as well as by that now existing. It is here that we are farthest behind ; and it is just here that we are in danger of acting least promptly and least effectively in the endeavor to place ourselves in a creditable relation to the world. The establishment of artisans' trade schools in every city in the State is of the most immediate importance, and the foundation of advanced schools of this character, in connection with the higher educational institutions of the State, is properly the most certain method of retaining maximum efficiency in the whole system, both by the preparation of young men and women for the most advanced and responsible positions in industrial establishments, and by supplying the minor schools with talented and well trained instructors. It has been shown that, to crown this whole system of industrial education and training, a polytechnic school is needed, in which the sciences and their most direct and useful applications should be taught by professors, each distinguished in his specialty and competent to expound the facts, principles, systems and theories of the latest and best authorities of the world, and to teach their most subtle refinements and explain their most abstruse investigation with that clearness and accuracy which comes of real learning.

In endorsing the views thus expressed, of the needs of this country and of the several states, the Commission recommended to the State Legislature that the proposed system of encouragement of industries and of education should be adopted, working into the system, so far as possible, existing educational institutions and supplementing them, as far as possible, by specially constituted departments in such schools, and by new schools, where required to make the system complete. It was, for example, advised that the endeavor be made to make the technical departments of Rutgers College or the Stevens Institute of Technology the head of the system, the germ, at least, of the polytechnic university that should become the capstone of this educational pyramid ; while the existing primary and secondary schools should be given such aid as might be needed to enable them to do the intermediate work of preparation for advanced technical instruction. The Commission advised the following :

(1). The establishment of a Bureau of Statistics, either distinct from or as constituting a Bureau of Industry, which shall be charged with the duty of collecting and reporting all facts, figures and other in-

formation relating to industrial matters, for the information and benefit of the people of the State.

(2). The introduction of a complete system of technical and trade education, which shall begin with the children of our artisans even in the primary schools, and which shall be continued into the polytechnic, agricultural and trade schools.

(3). The direct connection of the lower schools with the polytechnic and agricultural schools and the technical departments of colleges where such are already existing, and the adjustment of the courses of instruction in the two classes of schools in such a manner as shall enable them to work together efficiently.

(4). The establishment of trade schools—such as are common in Europe, but unfortunately almost unknown in the United States—in connection with the polytechnic and other educational establishments of the State.

(5). The introduction, throughout this whole scheme of instruction, of such a complete and so broad a system of instruction in art-education, as applicable in the manufacture of the finer textile manufactures, pottery, etc., etc., extending through all grades, such as shall insure the education, in the rising generation, of a sufficient number of artisans to place the State at least on a level, if possible, with foreign countries and with States which have been more prompt to see and to attempt to remedy the evils which otherwise threaten us.

(6). The creation, ultimately, of a Technical and Industrial University, in which the highest possible scientific and technical education applicable to industry, shall be taught by accomplished and distinguished professors familiar with the great industries, and in which the most subtle and intricate trade processes and principles of practice shall be made known, and shall be communicated to such of our youth as give evidence of sufficient talent to profit by them.

(7). Such legislation relating to capital as shall be best adapted to lead to its introduction and employment in the State, such legislation relating to labor as shall secure to the honest and industrious of all classes the right to sell their labor wherever and whenever it can find the best market for it, and such legislation relating to industrial enterprises as shall secure safety to property and non-molestation by ill-disposed men.

The reports, here quoted, to the Trustees of Cornell University, now taking her position as the greatest "Land-Grant College" in the United States, entitled by every right of original purpose and

endowment to lead in this direction, follow up a similar line of thought. They go on to say :—

One of the most serious needs of this country, to-day, is a well endowed and complete system of technical schools, and a thoroughly well planned and organized scheme of trade education and training in the constructive professions. Especially is this the case if our people are soon to be brought into competition with the nations of Europe in the markets of the world, including our own, by the modification of our revenue system. A convincing and startling evidence of this great necessity is to-day seen in Europe. Great Britain is a nation of mechanics and engineers and architects. Germany is a nation possessing as little of the constructive faculty, naturally, perhaps, as any body of enlightened people on the earth's surface. But Germany has, and has for a century had, a well schemed and organized system of technical schools, including both good trade schools and the higher schools of engineering and architecture; while Great Britain has only been awakened to a sense of the need of such a system of promotion of the useful arts and of self-protection since the era marked by the publication of John Scott Russell's despairing appeal to his countrymen to prepare for the coming storm of which the first rising clouds were seen at the London International Exhibition of 1861. But Germany and France had already gained a half a century in the race, and were rapidly canceling the tremendous advantage previously held by Great Britain in the possession of the inventions of Watt and his contemporaries, inventions which were the basis of all modern progress in the useful arts.

To-day, thanks to her wise and persistent promotion of technical and trade education, Germany has a system of manufactures which produces for the markets of Great Britain, in some lines, and, competing with her in her own fields and in her own colonies, meets with such success that Great Britain, driven to the expenditure of millions of pounds, upon her still infant system of education in the arts and trades, still finds herself beaten in her own hitherto undisputed domains. Her people and her statesmen, awake at last to the danger, are at their wit's end to find a way to retain the monopoly now rapidly slipping from her grasp and to insure to her working people and the nation that prosperity which their procrastination has so greatly hazarded. This is the state of affairs which our own people must face, in default of thorough preparation for meeting the

better educated and more systematically trained peoples of Europe, just as soon as the artificial barrier now existing is thrown down. We have made a beginning, but it is a mere beginning, and we have no national or state system and no general distribution of technical schools. We are to-day as inefficiently prepared for this industrial contest as we were, a generation ago, for a civil war; and the same tremendous waste of time, energy, and money which came of insufficient preparation then must be anticipated again in the later form of strife with which we are threatened. Every dollar of money and every intellectual and physical effort possible should be to-day, should long ago have been, directed toward the establishment of a general and completely organized system of education of the people to meet the needs of the people in the certainly approaching industrial contest for life, wealth, and ability to pursue every aim which the citizen of this country should be entitled to seek. With all that the general government can do and all that the states and the wealthy and patriotic among our citizens can possibly do, the crisis is likely to come too soon for our safety or comfort. This is the work in which this University is called by its position and its peculiar relation to the people to take a leading part; and its opportunities to take a place at the head of such a system are such as rarely have, and rarely can, come to any educational institution, however great and however well managed and successful otherwise.

What is being done abroad in this direction is hardly realized by the average American citizen. Only recently France has expended about 75,000,000 francs, \$15,000,000, on her provincial colleges, and has founded five hundred scholarships at an annual charge upon her treasury of \$150,000. Strasburg University alone receives from the state, according to Sir Lyon Playfair, a million francs per year; and the cost of the Prussian system of universities and technical colleges is not far from \$2,000,000 per annum in addition to tuition fees of students. The average cost of the buildings of twelve technical colleges on the continent of Europe is \$1,250,000; and the "Central Institution" in London has cost \$500,000 for erection of buildings, and this in localities where such expenses are not half what they are with us; while the annual operating expenses of each trade school are from \$50,000 to \$100,000 per annum. Of such schools hundreds are distributed over France, and more over Germany; so that, as stated in earlier reports of the director, it would require twenty such universities as this, fifty trade schools, and two thousand

manual training high schools, to give to our own country equal facilities for educating the ten thousand students, the fifteen thousand trade school, and the four hundred thousand high school, pupils who should all have the opportunity to secure systematic and skilled instruction in technical and trade schools. The City and Guilds of London, alone, provide instruction for eight thousand boys and young men in their London institution. And yet the Lord Chancellor of Great Britain recently said, at the opening of the Central Institution, "The Englishman has yet to learn that an extended and systematic education, *up to and including the methods of original research*, is now a necessary preliminary to the fullest development of industry." And this, notwithstanding the fact that England has already begun to specialize to such an extent that she has, among her technical schools for textile industries, eighteen for mixed weaves, twelve for dyeing, and twenty-nine for cotton goods. She has nearly a hundred weaving and designing schools, including among them some for the designing and production of lace manufactures.

Reading over the several reports of British Commissioners on technical education who have brought both information and warning from their studies of the continental schools, we find the very sensible advice "especially the primary and technical schools must be accessible, cheap and practical; or it will not attract common people with their small surplus of time, money and energy." And again, "The money which we can spare should be spent upon a few great schools and not frittered away upon a crowd of petty ones"—this, of course, with reference to the great technical colleges and universities. To secure highest efficiency and greatest economy in the organization and operation of an educational institution such as is now demanded by the political, no less than the individual necessities of our people, it is obvious that careful organization and a skillful co-ordination of its departments and schools is required. Every department may and must work directly and indirectly for the objects sought in the planning of the whole. The greater the number of schools and departments aggregated in the same locality, the better and more efficient the working of the whole. The more thoroughly the work is systematized and correlated, the greater the result. In the progress of any general system of education in a state or a nation, that institution which possesses the best organization, and the most effective congeries of schools or departments having related work, will always have the best chances of growth and high-

est opportunities for usefulness. Any University which, like Cornell, possesses the basis, the foundation, for such a superstructure, may rely upon becoming, by a natural process of selection, the central and dominant member of the whole system, if wisely administered. It is such considerations as these that lead to the conclusion that the State and individuals will find it best to add to its endowments, and to extend its range of work, rather than to accept the risk of multiplying foundations in scattered localities. It is vastly easier and less costly to inaugurate an additional school at such a university than to found one apart. Adding new schools of special work in engineering and the constructive professions is easy and inexpensive here; it means large cost and small results where all the foundations must be laid anew.

It will be generations before the United States will be so well supplied with such schools as it is the leading purpose of this University to provide, that the Trustees will be at loss for opportunities to apply surplus funds in directions in which they will now do such inestimable good. The need of technical departments and schools will exist in this country very many years; and it may be a matter of serious solicitude lest their establishment may not occur so tardily as to leave our country in an unfortunate relation to those other civilized countries in which so much greater foresight and so much larger views have been at work, generations ahead of us in this matter. We need, to-day, a hundred schools where we now possess one of this character. As already stated, to give the United States as good a system of instruction as the most favored parts of Germany, we should need twenty technical universities; fifty technical schools and colleges of the more popular grade, and not less than two thousand trade-schools, such as Chicago, St. Louis, Cleveland, Toledo, and other cities are just beginning to found, the teaching force demanded being one thousand professors and instructors in universities of the higher training, ten times as many in colleges of the second grade, and twenty thousand teachers in the trade-schools. A half million of our boys and young men should be to-day under such instruction. When we are so seriously in the rear of our contemporaries, and are hence compelled, as we are to-day, to draw upon Europe for our skilled artisans in all the industries, there need be no fear that the income of Cornell University, together with the aggregated incomes of all the colleges of this character yet founded, or likely to be founded in the next hundred years, will be more than sufficient for the de-

mands of its essential work; or even for the work in engineering and the mechanic arts alone.

There exists among the members of the engineering professions a somewhat strong impression, one which, it must be confessed, has some justification in the experience of the past, throughout the world, that a technical school cannot be made to succeed, fully and satisfactorily, as a part of an organization including academic schools; but, that, in the presence of these apparently conflicting interests, the school of engineering must suffer, if not absolutely fail. This conviction is expressed very strongly by President Eliot of Harvard, and still more so by the German educator, Professor Reuleaux, the head of the great technical university at Berlin, and who is, by many, regarded as the leader in the profession, in Europe. In his address entitled "*Cultur und Technik*," he says that, "notwithstanding their intended pursuit of a strictly scientific aim, the technical schools have not concluded their peace with the universities. Even with the best of goodwill, none of our efforts toward a real amalgamation of the two has ever been successful." He quotes Professor Koechly, who says: "And if not side by side, at least we can fight back to back," in the great contest with ignorance and barbarism. He considers this unfortunate difference as arising from inherent differences in aim, and goes on to say, that a blending of the two movements has been tried in the United States, our universities being both classic and technic, but that "the experiences hitherto gathered have not shown, so far as observation permits a judgment, that the union can be permanently maintained, or that it has furthered the interests of education in the way that legislators had anticipated."

It is a great pleasure to be able to testify that, although the influences tending to produce such differences as are here referred to, do and must, as I think, necessarily—and probably should—exist at Cornell University, there is as yet no evidence that they are to be apprehended as likely to produce permanent effect for evil. It seems more than probable that, every officer of the University understanding clearly its aims, and, as must be evident from the fact of his acceptance of duties in connection with it, approving those aims, the presence of representatives of such a variety of phases of educational work must exercise a conservative and beneficial effect in the development of a University, planned, as is Cornell, with the object of adding to its "leading" departments every adjunct necessary, to enable the student to acquire a thoroughly liberal, as well as practical, education.

To the technical student, frequent contact with liberally educated men and familiarity with a variety of non-technical work, must bring great advantages, aside from the other general liberalizing influences of his university life.

COMMUNICATIONS.

ENGLISH LITERATURE AND COLLEGE PREPARATION.

To the Editor of THE ACADEMY :

In the lists of books of which a knowledge is required for college entrance, I notice some omitted, year after year, that should surely be familiar to the student, and yet which may not have been read. So the question comes to me,—what ought the students to have read by the time they are ready for college, or through the academy or high school? Each one will have read many books that will never be quoted in a single one of the different ranks of society in which he may move, be it of rich men, poor men, beggars or thieves. I shall suppose that no harm has been done by that. There are a great many stories that I hope each one will have read besides those in the list below. But my question is, to restate it,—what are the books which we cannot be forgiven if we have not read? What are the books which if we have not read, some of our lifetime has not been properly lived? I refer only to books as literature, and not as a means of teaching historical or scientific facts. I shall give a list for criticism, if it is worth while, and divide it roughly into literature for four periods which may be called the Kindergarten, Primary, Grammar, and High School periods. No importance is attached to the present order of the stories in each series. The first on the list, "Proper Lessons," refers to the Bible stories that the child will doubtless have heard read in church. These will belong to no particular period of his life. Some he will learn early, and some later; but all in such a collection, for instance, as the "Proper Lessons" of the Episcopal Church ought to be familiar to him by High School graduation time. It is convenient to omit living authors from this list. After "Proper Lessons," each story is sufficiently identified by its title, it is to be hoped, without further bibliographical notes.

1. "Proper Lessons," throughout the course.

KINDERGARTEN PERIOD.

2. Mother Goose's Melodies.
3. Cinderella.
4. Jack-the-Giant-Killer.
5. Bluebeard.
6. Aladdin.
7. The Forty Thieves.
8. Sinbad the Sailor.

PRIMARY PERIOD.

9. Robinson Crusoe.
10. Sandford and Merton.
11. The Pilgrim's Progress.
12. A Voyage to Lilliput.
13. A Voyage to Brobdingnag.
14. The Adventures of Baron Munchausen.
15. The Robin Hood Ballads.
16. Æsop's Fables.

GRAMMAR PERIOD.

17. Ivanhoe.
18. The Lady of the Lake.
19. The Last of the Mohicans.
20. Rip Van Winkle.
21. A Legend of Sleepy Hollow.
22. A Psalm of Life.
23. Excelsior.
24. The Raven.

HIGH-SCHOOL PERIOD.

25. Pickwick.
26. Vanity Fair.
27. Gray's Elegy.
28. The Ancient Mariner.
29. Hamlet.
30. The Merchant of Venice.
31. Othello.
32. A Midsummer Night's Dream.

Please notice again that this does not try to be a list of the best books, nor to give a skeleton idea of English Literature,—but rather a list of what almost everybody has read, and therefore what everybody else ought to read, to become a congenial member of society.

E. P. KING.

PROVIDENCE, R. I.

NOTES.

By going back to the *North British Review* for May, 1854, one may find an unsigned article on "The Art of Education" good enough to have been written in 1888. Progress in education evidently means the getting of old principles into the consciousness and the practice of new generations of teachers. Few persons now teaching are old enough to have read this article with interest when it appeared. It might well be reprinted. One sentence of it is as follows:—

"To give the net product of inquiry without the inquiry that leads to it is found to be both enervating and inefficient."

Another is quoted from Fellenberg:—

"The individual, independent activity of the pupil is of much greater importance than the ordinary busy officiousness of many who assume the office of educators."

Another comes from Horace Mann:—

"Unfortunately education amongst us at present consists too much in telling, not in *training*."

The following is taken from Marcel:—

"What the learner discovers by mental exertion is better known than what is told to him."

These extracts show the spirit in which the article is written. Such an article needs to be rewritten and reinforced with contemporary illustration with such frequency that no teacher shall fail to be kept alive with regard to the doctrines that it inculcates.

One is tempted to suggest that the secondary schools never had their Pestalozzi or their Froebel, and that secondary teachers are still afraid to use natural methods suggested by the nature of youth, lest the pupils become too much interested and have the air of being amused, and the school procedures thus lose their proper note of a high strain of work. When Sir Roger went to the play, he was nonplussed to find that he was understanding the language of the actors, and seems to have doubted whether he was getting full satisfaction for his trouble in coming out amid the dangers of a London night. "But pray," says he, "you that are a critic, is this play according to your dramatic rules, as you call them? Should your people in tragedy always talk to be understood? Why, there is not a single sentence

in this play that I do not know the meaning of." Yet were the "*Distressed Mother*" a popular play to-day, it would doubtless have to be annotated that we might cease to read it with pleasure and begin to get some *mental discipline* out of its study.

The study of Physics and Chemistry, of Botany and Zoölogy, has been in very recent years reformed under the influence of the principles enunciated in the review article of 1854. Methods of history teaching, of language teaching, are also bravely struggling in the same direction. How to put these principles into practice in English teaching, is not yet clearly seen. An English methodic is the need of the hour. Who will first venture to break away from text-book traditions and show us a truly natural method in English Language and Literature?

President Sprague of the North Dakota University sends us a reprint of an address which he delivered several years ago before a Massachusetts convention in advocacy of the free text-book system. To this address he now appends, in further defence of the system, remarks made in debate at the meeting of the National Association recently held in San Francisco. This second expression of his convictions as to free text-books seems to have been elicited by a curiously intemperate and worthless piece of oratory on the other side which need not have been answered at all. President Sprague's own effort is a thoroughly oratorical one, and takes the form of a eulogy of Massachusetts and a display of her achievements in education. The perfectly harmless free text-book question furnished the occasion for two exhibitions of demonstrative eloquence which may have made a meeting interesting to such as love to witness a clash of mighty opposites, but which do not help to settle any issue, and only contribute to keep alive the miserable sectional animosity whose rapid disappearance from our national politics as well as from our national education is the most hopeful sign of the times.

As to free text-books, there is much to be said on both sides. Considerations of immediate practical convenience are all in favor of free books. Larger views of justice, of remoter consequences of existing tendencies, of political and social welfare, seem to point in the other direction. Undoubtedly the schools receive more pupils as the necessity of parental co-operation in education is removed. To say nothing of the question whether the responsibility of parents for the education of their children can be safely diminished, and grant-

ing that the primary schools should be as fully attended as possible, we hold that the benefits of secondary or higher education inure in such proportion to the advantage of the individual, as distinguished from the community, that to make this education absolutely gratuitous appears clearly anomalous and indefensible. It is in upper education that the waste of effort is the greatest.

Primary schools containing all the children of a community of primary age are thinkable and desirable. High schools and colleges containing all the youth of a community of high school and college age, even could such a state of thing be conceived, would not be desirable. For these grades of education there must be a choosing of fit candidates. Could this choosing be rightly managed in the beginning, the waste of effort involved in attempting the impossible would be checked. The graduate from a system of gratuitous upper education will probably be found to expect the same social consideration and the same desirable employment that he would strive to attain if he owed his superior culture to his own and his parents' resolute efforts.

Montaigne's "*Savoir par coeur n'est pas savoir*" has been before the world three centuries, has been enforced again and again as an educational maxim, and is probably known to every teacher of ordinary professional reading. Yet all the influences of our work, under the spell of either public school or private school drudgery, tend to thrust it perpetually into the background and to keep in force the monstrous untruth that to know by heart is the only kind of knowing. In one of the most carefully supervised school systems of this country pupils were recently found who, during a year's study of geometry, had been held to memorizing theorem and demonstration, corollaries and scholia, and were ready, if required by the new teacher, to go on doing the same kind of work in all faithfulness. It is possible still to find high school pupils receiving certain pages of rhetoric as a lesson and duly conning it for repetition at the coming recitation. The writer of these lines, in his college days, committed to memory large portions of Campbell and of Whately, but learned no rhetoric except from the discussions of the class-room under the guidance of the gentle and cultured professor, who, nevertheless, so grossly abused his text-books.

Excepting of course the committing to memory of beautiful passages of literature, and the very proper memorizing of a few useful

formulae and dates, it ought to be held to be the crime of pedagogic high treason not to observe with religious fidelity the maxim of Montaigne. Supervisors and principals can break up the habit of teaching to commit to memory by giving questions that shall test real knowledge. The warfare against memorizing for repetition should be remorseless. Forbid pupils to take notes of what you say, but nevertheless hold them to such a knowledge of it as comes of having given interested attention. It is of no use to exhort pupils not to commit to memory if the school methods tolerate the habit. The pupil who has learned by heart a demonstration in geometry or a paragraph in Somebody's rhetoric should not be let off easily. He should be cross-questioned and brought to confusion. The ignorance that is in him should be brought out till he is painfully conscious of it. The searching questions asked of applicants for admission to higher schools often reveal the fact that our instruction has missed its aim. It has not made the pupils *think*. The first step towards remedying this justly charged defect is to put rigidly in force Montaigne's maxim, "To know by heart is not to know."

BOOKS RECEIVED.

Shakespeare and Chaucer Examinations. Edited, with some remarks on the class-room study of Shakespeare, by William Taylor Thom, M. A., professor of English Literature in Hollins Institute, Virginia. Ginn & Co. 1888.

We cordially approve Mr. Thom's method of making known his ideas as to the teaching of English. To print sets of examination questions and the answers made to them by several pupils is not only to challenge attention at the outset, but also to achieve a clearness and thoroughness of presentation that no amount of essay-writing could accomplish. Yet Mr. Thom writes his essay too. The book therefore presents theory and practice, or principles together with illustrations; and is therefore more interesting than the books of mere theory, like Mr. Hudson's, and far more usefully suggestive of devices capable of being at once put in practice.

Mr Thom's essay on the Class-room study of Shakespeare is a piece of vigorous writing, quite in the Hudson vein. In this he aims to show what the study of Shakespeare may do, especially for

girls. Enthusiastic as he is in urging the preeminent importance of this portion of girls' education, we do not think he overstates his case. What the pupil gets in her native literature is not only nearest to her in respect of language, but the most abounding in possibilities of further literary and historical association; so that while English literature must be to English speaking persons the centre of educative influences, Shakespeare, as the center of English literature, must remain, as it were the heart and soul of school discipline.

In denouncing methods which he considers wrong Mr. Thom finds strong language ready at his hand. But here also we entreat our readers not to consider this denunciation overdone. It is really all needed and is all exceedingly well directed. How can too much gall be possibly infused into one's speech when one has to speak, for example, of the elocutionists and their "marvellous renditions" of Shakespeare?

Mr. Thom prefers the Clarendon Press editions of the plays;—to Hudson, because he desires the notes to be at the end of the book;—and to Rolfe, because the latter's editions are too liberally furnished with *variorum* notes. He thinks that some time should elapse between the finding of the difficulty and the finding of the solution,—at least as much time as it takes to turn over a few leaves. In this preference we not only most heartily agree with Mr. Thom, but we go considerably further than he does. We would have our notes to Shakespeare disjoined altogether from the volume containing the text, and we would have this book of notes kept locked in another room where it could not be got at without disturbing a class which should on no account whatever be disturbed. Pupils anxious enough about getting at some notes to stay after school should then have access to them.

The examination questions, which with their answers by the pupils, occupy the bulk of the book, are not all prepared by Mr. Thom himself. One set was made by Prof F. J. Child of Harvard University, another by Mr. Horace Howard Furness, and still another by the "New Shakspeare Society" or, presumably, by the director of the Society, Mr. F. J. Furnivall. Of course the girls answer with wonderful accuracy and fulness, as well as with elegance of expression. It will be interesting to other teachers of girls to see if they can get as good work from their pupils.

Yet we doubt if many teachers will desire to emulate exactly Mr. Thom's examinations. We should certainly not wish to prepare our

own girls for an examination such as are here given by Mr. Thom and the distinguished scholars who prepared questions for him. It seems to us that the principles he announces in his essay are not quite lived up to in his own practice. Many of the questions imply merely the retention in the memory of the contents of notes; and these notes are purely incidental to the content of the text, such as must, in their nature be foisted upon it having no roots at all *in it*, and being a matter of pure indifference so far as concerns enjoying the text or understanding it as a work of literature. Our only charge against Mr. Thom's book therefore has to do with his extravagant estimate of the value of the adventitious matter that the custom of pedagogues and scholars has succeeded in so fastening upon school work in literature that it has become well nigh impossible to think of such work in its natural simplicity and to undertake it for its legitimate purpose.

The long and fluent answers to imposing questions which the girls of the Hollins Institute gave in their examinations and which are here reproduced, should not discourage teachers from doing the best they can in their own way, even if their way is not that of the compiler of this book. We esteem the book as among the best guides and incentives to good teaching that we know. English teachers should make its acquaintance and see if it will not render them a service.

A Compendious German Grammar. By W. D. Whitney. Sixth edition thoroughly revised and with new exercises. New York: H. Holt & Co.

There are no fundamental changes in this edition. After comparing many paragraphs, we have hardly found one whose wording has been changed except in the chapter on Pronunciation. The illustrations have been increased. Long list of words have been added as for instance in §84.

A new edition of Heyse's *Schulgrammatik*, upon which this grammar was based, appeared in 1886 prepared by Dr. Otto Lyon, who brought the old Heyse much nearer to the present state of German philology. This has not been consulted. There was an excellent chance to bring the chapter on the "Relation of German to English" up to date.

The two important changes are in the type and in the exercises. As to the type, its former variety has been reduced to two sizes. This reduction has been suggested to the author, it seems. We

cannot but think it a great mistake. The reader cannot get a quick survey of a whole page or a long paragraph. See for instance §216 and §219, in which, by the way, the fifth section has been increased by a list of 20 verbs. Page 89 is one mass of long primer. The German words are in type somewhat larger than the Roman of the English words and the translations are in italics, which frequently run in curves. The Italics and the German and Roman letters are not on the same line. For legibility the German type should be smaller than the Roman.

As to exercises, the German ones that were in the body of the Grammar have been taken out. (This did not necessitate any change in the paragraphing.) The new exercises are grouped in two series. The first series (pages 285-334) consists of sentences "made to order," so to speak. The German ones are too numerous for a grammar like this, which does not claim to be a so-called "practical" grammar. Some of these sentences remind one a little of Ollendorf's shoestrings of the miller's daughter and the blue parasol of the young son of the shoemaker. Of what nationality is the man who, according to sentence 13 in theme VIII. "drank several glasses of beer and ate two pounds of meat in the bar-room?" The vocabulary of new words preceding the exercises of this series is of questionable advantage. All the words are promised again in the final vocabulary. In fact space seems to have been of no account in the new edition. The "new" spelling has been put in brackets after every word both in the body of the book and in the vocabularies.

The second series (pages 335-395) "consists of sentences selected from the writings of well-known German authors, illustrative of the usages of the language." "Accompanying these are short English themes for translation into German, in which are used as far as possible the same words or the same constructions which are to be found in the illustrative sentences." This is a good feature, but there is too much of it. "*Gebraucht der Zeit, sie geht so schnell von hinnen*" is attributed to Schiller. We saw it last in Goethe's Faust.

The old grammar was an old friend of ours, and we are much disappointed in its new form and dress. It has now 100 pages more than the Meissner-Joynes grammar with all its exercises and long word-lists, and 200 pages more than Brandt's. Author and publisher have striven to beat off the new rivals, Meissner-Joynes on the practical side and Brandt in the scientific and historical direction, but bulk made up of long lists (§84) and vast quantities of ex-

ercises will not do it. Unlike its rivals it has kept the old orthography and put the new in brackets. This is a great waste of space and annoying in the reading. It is true the new orthography has several bad features and is difficult to follow, but it will certainly not go backward. We notice, when an author is quoted who uses the new spelling, this has been put in. For instance p. 354 l. 4 occurs "*indes*," new spelling. The vocabulary shows only "*indesz*," "*indessen*," old spelling.

Selections from Ruskin (on reading and other subjects) by Edwin Ginn. With notes and a sketch of Ruskin's life by D. H. M. — Ginn & Co. 1888.

"This volume contains Ruskin's four lectures on Books and Reading, War, and Work, selected from 'Sesame and Lilies,' and the 'Crown of Wild Olive,' and slightly abridged for school use." "Such notes have been added as seemed necessary for the complete understanding of the text."

The notes appended to these selections from Ruskin indicate the grade and the class of pupils for whom the compiler meant to fit the book. It was evidently intended for children too young to use a dictionary, or not having access to a dictionary, or else it was meant to discourage the habit of stopping to think over difficulties and of taking measures to conquer them. It seems moreover to have in view schools whose teachers are incompetent to explain common allusions or are perhaps too busy to teach, and therefore limit their activity to hearing recitations. All this we consider wrong. In the first place, Ruskin is the last author to put in the hands of young pupils. No amount of verbal explanation will make Ruskin profitable to any but the oldest learners, and these will no longer need the explanations. No author so wayward in style and thought, so full of petulance, so ill-natured, so marked with the idiosyncrasies of pessimism, as Ruskin, ought to be put before children too young to make the necessary allowances. Children do not and cannot make allowances. Not all adults can do it.

But even were Ruskin a suitable author for children, such notes as we find here would be a hindrance, rather than a help, to good instruction.

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*IS A MODIFICATION OF THE PRESENT MODERN
LANGUAGE REQUISITIONS FOR ADMISSION TO
COLLEGE DESIRABLE AND PRACTICABLE?**

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It is my purpose, in the present paper, to examine the requisitions for admission, prescribed by the several colleges, with reference to their scope, their character, and their implied suggestions. Instructors in the secondary schools are accustomed to consult these official prescriptions to see how much they are expected to teach their pupils, what material they are required to use, and by what method they are invited to accomplish the results demanded. I earnestly hope that the examination which I propose will provoke a free and full discussion on the part of those directly interested in the question at issue, and especially on the part of those immediately responsible for the existing facts. If such a discussion should result in the suggestion and adoption of practical measures looking to the removal of the present diversity, and relief from the embarrassments which it produces, I believe that substantial progress would be made towards the establishment of the modern language work in the secondary schools on a sound and satisfactory basis.

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It will be convenient, for the sake of bringing this discussion within manageable limits, for me to confine myself to the consideration of the requisitions in French, and to ignore the German requisitions. It will be understood, however, that I adopt this course for convenience only; and that what I shall have to say about the French requisitions applies, for like reasons and with equal force, to the German. Apart from the names of authors and the titles of books, the facts, principles, and arguments are the same for both.

Of the fourteen institutions represented in the *Commission of Colleges in New England*, four make no requisition in the modern languages. These colleges, therefore, may be disregarded in the present inquiry. Of the remaining ten colleges, seven make what may be called an elementary requisition. These are: Harvard, including the "Annex," Yale, Amherst, Boston University, Wesleyan University, Brown University, and Dartmouth. Of these the first five, Harvard, Yale, Amherst, Boston University, and Wesleyan University, allow a choice between French and German; the remaining two, Brown University and Dartmouth, restrict the modern language requirement to French. In the case of Wesleyan and Dartmouth, the modern language is not required for admission to the classical course.

The Harvard elementary requisition in French is (I quote from the catalogue):

"The translation at sight of ordinary prose.

"A knowledge of the language itself, rather than of the grammar, is expected; but proficiency in elementary grammar or facility in writing the language will be accepted as an offset for some deficiency in translation."

It will be observed that ability to read intelligently at sight simple French prose is demanded. The method by which this ability is to be acquired is not prescribed; the means by which it is to be tested is translation into English. There is an implication that ability to read at sight may be acquired without the aid of elementary grammar, and such a method of acquiring it seems to be gently recommended; but a concession is made to those who hold that a knowledge of elementary grammar is helpful in the acquisition of ability to read at sight, for proficiency in elementary grammar, as tested by facility in writing the language, will be accepted as an offset for some deficiency in translation. So far as the language of this requisition gives suggestions as to methods of instruction, it is analogous to what is called the "squinting construction" in rhetoric. It looks

both ways, and leaves the reader to choose between them. Perhaps there is a timid implication that the best course will be found in a combination of the two.

The Yale requisition in French is: "so far as to translate at sight easy prose;" that of Wesleyan University is: "such a knowledge of the language will be required as will enable the candidate to read easy passages at sight;" that of Boston University is: "the translation at sight of easy prose."

As the language of these requisitions mentions only the result to be reached, and neither says nor implies anything as to method, it invites no special comment. Publishers and authors who covet official endorsement, and some teachers, who like to work in a tight-fitting harness, may regret the absence of definite prescription; but there are teachers who find a healthful stimulus in the freedom which it offers.

The Amherst elementary French requisition is: "Keetel's Elementary Grammar, or Whitney's Grammar, Part I., and the translation at sight of simple French prose;" that of Brown University is: "1. Part I. of Whitney's Grammar. 2. Bôcher's Otto's Reader, fifty pages. Real equivalents will be accepted;" that of Dartmouth is: "Candidates passing an examination in Otto's French Grammar, Part I., with the Reading Lessons, will have the privilege of pursuing the study in an advanced division."

It will be observed that in each of these three forms of statement elementary grammar stands first and translation second. A hasty, but not unnatural inference might be that the colleges in question recommend the study of grammar as the best preparation for reading. The advocates of the natural method, so-called, insist that this is a reversal of the true order of procedure; that conversation should come first, then reading and oral narration, and grammar last of all. But when one examines the "*Grammaire pour les Anglais*," written by Dr. Sauveur, the leading exponent of the natural method, and comes to understand what the advocates of that method mean by grammar, one may well doubt whether the disagreement between the two factions is a very serious one after all. No one in his right mind would think of carrying a beginner through that book, with its confusing nicety of discrimination in forms and constructions, even if it were written in English. Too much, then, is not to be made of the apparent recommendation as to method embodied in the forms of statement just read. While there may be nothing in them to en-

courage a teacher who believes in the efficacy of a free use of French conversation with beginners, there is certainly nothing to discourage such a teacher from following the method of his choice.

It will be observed, further, that each of these three colleges recommends a different grammar, and prescribes a definite portion of its contents. Applicants who have studied the particular grammar prescribed by a given college will have a slight advantage at the entrance examination over those who have not, an advantage which teachers will be prompt to recognize in their choice of a text-book. For the embarrassment experienced by the examinee in the presence of an unfamiliar terminology, or of a novel mode of referring to familiar principles, is not wholly imaginary, and candidates of equal attainments may easily be differentiated in the marking under the operation of the puzzling disguises of tweedledum and tweedledee. Presumably the authorities of these colleges would be satisfied—indeed one of them expressly says that real equivalents will be accepted—if candidates came to them with a fair knowledge of elementary French grammar and ability to read simple prose at sight. If so, why not say so? The only conceivable explanation of the diversity noted is that there has been no concerted action. Each college has acted independently, and perhaps has stated its requirements differently from the rest to escape the suspicion of imitation. I once heard a college student account for a certain professor's practice of teaching by means of dictated lectures by saying that the professor had not been able to find a text-book "suited to his case." I am inclined to think that college authorities also, in some instances, in making out their requisitions for admission, adopt independent forms of statement for subjective rather than for objective reasons.

So far then as the elementary requisition in modern languages is concerned, it would be fair to say that there is no positive prescription as to method, as there is, for example, in the recently established Harvard requisition in Physics, and no irreconcilable diversity of requirement as to the character and amount of knowledge demanded. If the elementary requisition only had to be taken into account, practical uniformity of requirement would be easily attainable, and the teachers of secondary schools would have—and indeed at the present time actually do have—no substantial ground for complaint. But certain colleges have established an advanced requirement. How is it with this? Is there any reasonable ground for fault-finding here? Let us see.

The colleges which have established an elementary requisition in the modern languages wish to secure a foundation for collegiate work. This foundation, by whatever method laid, must in all cases be substantially the same,—proficiency in elementary grammar and composition, and ability to read intelligently simple prose. With this elementary knowledge as a basis, each college, in conformity with its own ideas as to the part which the modern languages are fitted to perform in a scheme of general education, will lay out its courses of study, and do its advanced work in its own way. At this point, therefore, the paths of progress may be expected to diverge. One college may put stress on the acquisition of familiarity with the literature of the foreign language as the exponent of the historical development of the people whose national life it registers; another may lay stress on the acquisition of a mastery of the language for practical uses, and so treat the literature merely as a means to the attainment of that end; a third may view the language from the philological side, dealing largely with its early forms, and employing the modern tongue mainly as an instrument of research; while a fourth may combine two or more of these several aims. The arguments to which the advocates of each of these departments of investigation and study may appeal in vindication of their preference are weighty, and, if the colleges cannot, within their own domain, organize independent courses of study which shall represent them all, it may well be that they will differentiate themselves in this direction, just as the secondary schools which are directly tributary to Harvard University are now gradually differentiating themselves under the operation of the scheme of requisitions for admission recently adopted by that institution.

Now if the colleges, differentiated as I have supposed, should, in their efforts to provide a suitable modern language substitute for Greek in their requirements for admission, adopt independent advanced requisitions running parallel to their own courses of instruction, it is easy to see that, in the absence of conference and concerted action, there might result as many schemes of requirement for admission as there were colleges. The embarrassing and disorganizing effect of such heterogeneous schemes on the secondary schools which send pupils to different colleges can readily be imagined. I need not enlarge upon them. The effect of a like diversity in other departments was so vividly described by Dr. Bancroft, at the first session of this association, that a commission has since been

organized with the special function, among others, of ascertaining how this harmful diversity may be reduced.

Now the state of facts which I have here assumed as possible actually exists to a mischievous extent, as I shall proceed to show.

The Harvard advanced requisition in French is as follows:

"George Sand (Marianne). Sandeau (Mlle. de le Seiglière, the play). Sandeau (Le Gendre de Monsieur Poirier). Henri Gréville (Dosia). La Fontaine (Fables, books 1 and 2). Molière (L'Avare). Racine (Andromaque). Corneille (Horace). Translation at sight of modern French prose. Grammar and Composition.

"In advanced French, translation at sight will form an important part of the examination. Candidates will be expected to be familiar with the subject-matter as well as the language of the prescribed books. Some of the latter may be changed from year to year. The passages set for translation into French will be suited to the proficiency of those who have begun to study the language in College and have had instruction in it for two years."

The objects aimed at in this requisition, it will be observed, are: ability to read easily modern prose fiction and plays, and classic poetry,—especially dramatic poetry, and acquaintance with a few standard writers of the modern and classic periods, obtained through the translation of a complete work of each. Grammar and composition are also required, but of what kind and to what extent can only be guessed at. Ability to speak French and to understand it when spoken, and ability to reproduce orally and in writing narratives that have been read silently by the student, or orally to him, are not demanded. In other words, practice in conversation and oral narration are not recognized as essential features of the instruction to be given. The aim is literary rather than practical. That this is a correct interpretation of the aim embodied in this requisition is evident from the fact that stress is put upon the content of the work prescribed; for "candidates," says the requisition, "will be expected to be familiar with the subject matter as well as the language of the prescribed books."

At this point let me say incidentally that in language work, whether the language in question be native or foreign, too much care cannot be exercised in the selection of the material used for reading. This consideration becomes especially important when we reflect that in most of our schools young people are instructed in mixed classes. Works which suggest refining and ennobling thoughts should be chosen, and those which minister to the lower passions should be rigorously excluded. It is not enough even that the works selected be neutral merely in their moral influence; they should be *positively*

wholesome. No instructor, whatever be his department, can afford to forget that his first business is to form character. In reading the modern prose works included in the present requisition, I have been struck with the want of care in this regard which characterizes the selection made. From the point of view now under consideration, I should call "*Marianne*," by George Sand, good, or at least neutral; "*Mlle. de la Seiglière*," by Sandeau, good; "*Le Gendre de Monsieur Poirier*," by the same author, objectionable,—as Sandeau is already represented, a better book by a different author might, for a two-fold reason, be substituted; and "*Dosia*," by Henri Gréville, objectionable in the first five chapters. In "*Le Gendre de M. Poirier*," the mercenary marriage of a French marquis with the daughter of a tuft-hunting bourgeois, his lavish prodigality of his father-in-law's resources, his intrigue with another man's wife, and a patched-up duel growing out of this intrigue, form the staple of the plot. The tone of the play from beginning to end is low, and I do not recall a solitary noble sentiment that redeems the prevailing tone. The first five chapters of "*Dosia*" contain an amusing story of an extravagantly impossible elopement, told, it is true, with exquisite naïveté, but with occasional lapses into a viciously seductive realism, in the mess-room of a party of military officers under the stimulating influence of a capacious bowl of punch, of which both the narrator and his auditors have partaken inordinately. Whatever may be said of matter of this kind introduced with artistic intent into difficult poetry, the same matter in the form of easy prose is intelligible enough to be dangerous. It is possible for a young girl to read the fourth book of the *Æneid* almost without suspecting, and certainly without recalling afterwards, that the relations of *Æneas* and *Dido* were illicit, whereas the same story stripped of its Latin disguise and dressed in simple prose would be as questionable reading for her as "*Tom Jones*."

The Wellesley advanced requisition in French, which replaces Greek and admits to the Scientific Course, is as follows:

"Instead of Greek, the candidate must be prepared in either French or German, or both. If French only is presented, she must be prepared upon

Sauveur's Grammar.

Sauveur's *Causeries avec mes Elèves*.

Sauveur's *Les Contes Merveilleux*.

Six of La Fontaine's *Fables* committed to memory.

Two modern plays, from the first volume of Bôcher's *College Plays*.

Hennequin's *Idiomatic French* and Roulier's *Translations into French*.

Lectures Françaises, by A. Cohn.

Two Classic Plays, Molière's or Racine's.

The candidate will be expected to be thoroughly familiar with the formation and use of French verbs, and to have given special attention to composition and conversation. *Les Contes Merveilleux* is especially recommended for drill in conversation."

The aim embodied in this requisition is obviously distinct from that embodied in the foregoing. The aim here is to secure a mastery of the language as such. Incidentally some slight acquaintance with the literature will be gained, but this can hardly be said to form a part of the plan. The end primarily sought is such an acquaintance with the language as will enable the student—of course within relatively narrow limits—to speak it, to read it, and to write it. Later, undoubtedly, the practical facility thus gained will be put to literary uses, but not now. Some literary culture may filter through and get itself assimilated by the process known in physiological psychology as unconscious cerebration. But this is not the intention, or, if it is, it is a subordinate intention, and is not to be confused with the main purpose. That this is a correct interpretation of the aim embodied in this requisition is evident from the fact that special emphasis is put upon French conversation and French composition, not only in the text-books prescribed, but in the note of advice, or rather of warning, addressed to candidates for admission. "The candidate," says the requisition, "will be expected to have given special attention to composition and conversation. '*Les Contes Merveilleux*'"—a work, by the way, which has almost no point of contact with French literature, but is made up almost wholly of translations from the German—"is especially recommended for drill in conversation."

Perhaps I may seem to be striving to disparage the requisition under consideration. That is not my intention at all. If the first object to be gained in the earlier stages of study in a foreign language is practical facility in using that language in conversation, in reading, and in composition—and there is so much to be said in favor of that view that to many persons it seems to be self-evident—this is a better requisition than the preceding, for it goes straight to the mark. My object is merely to bring into clear relief the aim embodied in this requisition. This aim, I repeat, is not literary, but practical.

In comparing the Harvard requisition with that of Wellesley, I am reminded of the story, published in the journal issued by Bryant and Stratton's commercial college, so called, of an imaginary inter-

view between a merchant and a high school graduate who is an applicant for a position as clerk. The poor boy has nothing but a cultivated mind to recommend him. He has studied algebra, English literature, geometry, chemistry, civil government, French, ancient history, physics, etc., but he has not become expert in applying any of his knowledge to practical, bread-winning uses. Confronted with concrete duties, to be performed offhand, he is helpless, although, after a few months' experience with these concrete duties, he might perhaps become an intelligent, instead of a mechanical, helper. The moral of the story is that the applicant should "finish off" at Bryant and Stratton's commercial college, where he would learn to distinguish at sight a check from a draft, and an invoice from a bill of sale, to keep books by double entry, to write his name in a copy-book hand with a handsome flourish at the end, and to incorporate in his epistolary style those illiterate, elliptical phrases which vitiate so much of what is called in commercial college parlance "business correspondence:" where, in short, he would learn to be an "A one" business clerk.

A high school graduate trained under the prescriptions of the Wellesley requisition would undoubtedly be better equipped for the duties of a correspondence clerk or travelling agent for an importing house than one trained under the Harvard requisition. Perhaps he would be better equipped for the prosecution of a systematic course of study in French history and literature, though of this I am not so sure. If, however, he were to be left at this point without an instructor, so as to be thrown wholly upon his own resources, I question whether he would have the same desire to enter upon such a course of study; whether he would have the same aptitude for the successful prosecution of it; and whether he would have an equal power of intelligent self-direction. In other words, I am inclined to think that the study of French would contribute more under the prescriptions of the first requisition than under those of the second to the intellectual development of the pupil.

But assuming that the ideals embodied in the two requisitions thus far considered are equally excellent, is it possible for schools which send pupils to both colleges to meet satisfactorily both sets of requirements? Obviously not. The attempt to do so would result on the one hand in a breaking up of classes and a complication of programme which to many schools would mean financial failure, or on the other hand in the subjection of pupils to a mental and physical

strain which they could not endure. The two sets of requirements have so little in common that it is difficult to estimate how much additional work would have to be done by a pupil who had satisfied one set of requirements before he could be safely recommended for an examination on the other. The most economical way of combining the two would probably be to satisfy the Wellesley requisition first. Then those parts of the Harvard requisition which remained unprovided for could be disposed of with the minimum expenditure of time. This method would add perhaps fifty per cent to the work required for satisfying the Wellesley requisition alone. If the Harvard requisition should be taken first, and the Wellesley requisition be added, the increase would be considerably greater, perhaps seventy-five per cent. This difference in the estimate of the additional work required in the two cases is based on the fact that, under the Harvard requisition, the practice of conversation and oral narration may be omitted and the grammatical knowledge demanded be acquired through the medium of English. Whether any teacher who sends pupils to both these colleges has voluntarily undertaken to meet both sets of requirements, I do not know ; probably not. If the two colleges in question had conspired to deter the secondary schools from choosing a modern language substitute for Greek in preparing their pupils for college, they could not have resorted to a more effective expedient than that of fixing independently, as they have done, the content of that substitute. Apparently their requisitions say : " You may send your students to college without Greek ; we will accept French in its place." But in effect they say : " If you dare to close with this invitation, you will imperil the success of your pupils at the entrance examination."

But perhaps it may be said : " The secondary schools would, it is true, be benefited by a modification of these heterogeneous requirements ; but can the colleges, without surrendering their respective convictions as to what should constitute a sound preliminary training, unite in a common scheme of requirements ? " That question I shall postpone for the present. I shall answer it later, when I have considered the requisitions of the two remaining colleges.

The Smith College advanced requisition in French, which replaces Greek and admits to the Literary Course, is as follows:

" Larousse's *Grammaire Complète*, or Sauveur's *Grammaire pour les Anglais*; Bougeault's *Précis de la Littérature Française* to the sixteenth century; six fables of La Fontaine (memorized); Les Enchantements de la Forêt by André Theuriot ;

Perdue by Henri Gréville; from Bôcher's College Plays, *La Joie Fait Peur*, and *Le Roman d'un Jeune Homme Pauvre*; *Les Précieuses Ridicules* by Molière; *Esther* by Racine; translation from English into French of five of Hawthorne's *Twice-Told Tales* or the *Wonder Book*.

"In French and German the examinations will be conducted in those languages, and students must be prepared to give simple but clear and connected accounts of what they have read. Each of the courses will ordinarily occupy under competent teachers three hours a week for three years."

This scheme of requirements, it will be observed, includes both the literary and the practical aim. Indeed it not only combines the distinctive characteristics of the two which have already been considered, but it is, I am inclined to think, preferable to either on its own ground. I have spoken of the importance of careful discrimination in the selection of material prescribed for reading in the preparatory course, and of the unconscious influence exerted on the mind and character during the formative period through the thoughts suggested by the content of the work studied. In reading the works prescribed in the Smith College requirement, I have been impressed by the exceptional care which has evidently been taken not merely to avoid what is objectionable, but to pass over what is merely neutral and to select what is in the best sense educative. Not that the element of attractiveness has been ignored in favor of the morally elevating. The present list of books furnishes as interesting reading matter as the others; but it is not interesting merely; it is pure, wholesome, and intellectually and morally nutritive. The Harvard requisition, for example, contains a work by Henri Gréville—" *Dosia* "—a part of which is a fascinating picture of the lower forms of animal enjoyment, and the rest mainly artistic creation with only occasional touches of moral coloring. The present requisition contains a work by the same author—" *Perdue* "—equally interesting in incident and delineation of character, the reading of which is of itself a moral education. A sympathetic participation in the moral struggles and triumphs of the thoroughly human characters of this book yields not merely increased facility in the reading of French, though it produces even that more effectively, to my thinking, than attention to matter of more thrilling or more romantic interest; but, through the culture of the sensibilities and the will, it helps to form, in addition, a finer product,—disciplined character. Again, the Wellesley requisition prescribes for drill in conversation " *Les Contes Merveilleux*," a collection of tales translated from the German fairy stories of the brothers Grimm. The present requisi-

tion offers in André Theuriet's "*Les Enchantements de la Forêt*," material almost, if not quite, as well adapted for this use, thoroughly French in conception and in local coloring. Moreover, besides affording suitable material for practice in conversation, this work incidentally performs the higher service of awakening in the pupil a love of nature and of inspiring, without preaching, a reverent spirit towards the beneficent author of nature. It is not a delineation of the marvelous as such, which, being palpably untrue, can develop the imaginative powers of children only, but such a treatment of the common, yet unfamiliar, forms and processes of vegetable and animal life as awakens the powers of the pupil to a sympathetic appreciation of the marvelous, and yet real, beauty, and the profound, and yet in a sense fathomable, mystery of nature.

"In French and German," says the requisition further, "the examinations will be conducted in those languages. Students must be prepared to give simple, but clear accounts of what they have read." This repeats the prescription of the Harvard requisition that candidates must be familiar with the subject-matter as well as the language of the prescribed books, with the addition that a simple account of the subject-matter must be given in French. Two things are worth noting here: first, that stress put upon familiarity with the subject-matter of the works read is rational and intelligible when careful discrimination has been exercised in the selection of the subject-matter; and, secondly, that the teacher is by implication invited to make the works read the basis of exercises in French composition. In view of this implied recommendation, however, another part of the requisition under consideration seems both superfluous and inconsistent. It strikes me that translation into French of English passages based on the modern prose works read, would have been a requirement much more consonant with the general character and spirit of the requisition than the translation of five of Hawthorne's "Twice-Told Tales" or the "Wonder Book." Hawthorne's English would have to be painfully worked over into French by the inexperienced student under the guidance of that sort of dictionary whose meagre directions hardly warn him against such egregious blunders as this, which one of the teachers associated with me met with in a pupil's exercise not long ago. The English sentence to be translated was: "Swallow one of them;" and the French translation was: "*Hirondelle un de les.*" In the works read, on the other hand, the vocabulary and the constructions in which it may safely be used are

found ready to hand. Moreover, exercises in composition based on the works read by the pupil have the additional advantage of reënforcing the attention with which the matter read is observed in the reading. If anything is settled in the domain of language teaching, both by the precepts of the masters, as Milton, Ascham, Locke, and by the experience of self-taught students, as, for example, Schliemann, it is that reproduction under the guidance of recognized models of style, is one of the most fruitful means of acquiring facility in composition in a foreign language.

Finally, the Smith College requisition, like that of Wellesley, prescribes the French language as the medium through which a knowledge of the grammar is to be obtained. Whatever opinion may be held as to the way in which the beginner should be introduced to the forms of the language, I suppose there will be little disagreement as to the propriety of including such a requirement in what purports to be an advanced requisition in French.

In the main, then, for the aim, character, and scope of the present requisition, I have only commendation to express. If the colleges can be induced to unite in a common scheme of requirements in advanced French, I believe that the one now under consideration might well be made the basis of such a scheme. But, as matters now stand, how does the Smith College requisition affect the preparatory schools which send students to the three colleges thus far considered, and which attempt to offer a modern language substitute for Greek. It adds about fifty per cent to the amount of work necessary to satisfy the requirements which the three colleges have in common; and that fifty per cent is made up of a content different from anything found in the requisitions of the other two. A class containing pupils fitting for each of these three colleges must either be broken up into three classes in French, or must do at least double the amount of work required by any one college in the group. "My brethren, these things ought not so to be."

I pass to Tufts College, of which the advanced French requisition, which replaces Greek and admits to the Philosophical Course, is as follows :

"For admission to the Philosophical Course, German or French may be substituted for Greek. The candidate must give evidence of a thorough knowledge of the accidence and more important principles of syntax of the language presented, and be able to render simple English sentences into the same, and must have translated the equivalent of two hundred duodecimo pages, including one classic drama. Mac-

millan's Progressive German Course (or French Course, Parts I. and II.) may represent the amount of text-book work in grammar and composition requisite in preparation for this course."

In view of the object which I have had in view in preparing this paper, viz., to show the desirableness and practicability of some modification of the present heterogeneous and perplexing requirements in the modern languages, which, by securing a nearer approach to uniformity, shall remove the mechanical difficulties that embarrass the secondary schools, and thereby simplify and improve their work, I shall not need to comment at length on the Tufts College requisition. In amount, it is considerably less than that of either of the three colleges already considered, and in terms it offers almost absolute freedom as to text-books, method of instruction, and material for reading. It therefore occasions no embarrassment whatever to the secondary schools. A pupil who can satisfy the requirements of any one of the other three colleges can, without additional work, satisfy the requirements of Tufts. This requisition assumes that the secondary schools are competent to frame a satisfactory course of study without interference from the colleges. It does not put a tight-fitting harness on the teachers and force them to tug with it at an impossible load. Perhaps experience would show that some such form of requisition as this would be as safe in the case of the modern languages as the correspondingly simple requisition in elementary mathematics—algebra through quadratic equations and plane geometry—has proved to be. At all events, a loose harness is preferable to one that galls, chafes, and frets, and certainly is better than three of different sizes put one on top of another. Such liberality of spirit, it is safe to say, will interpose no obstacle to a movement in the direction of uniformity of requirement.

I trust that I have shown that the existing requirements in the modern languages are insufferably onerous and perplexing. The only question which remains for me to consider is, Are they needlessly so? In other words can they be harmonized without any serious sacrifice of principle on the part of those who have imposed them? I believe that they can be; and, after what I have already said, it will not be difficult to show how.

A careful comparison of the four sets of requirements in question will show that, notwithstanding great diversity in matters of detail, they have many points in common; and, further, that the features which they have in common are essential features, while those which

are peculiar to each are non-essential. Thus the colleges unite in demanding considerable proficiency in grammar and composition; they differ somewhat, but not irreconcilably, in the method by which this proficiency is to be gained. One of the four puts express emphasis, and another implied emphasis, on the ability to converse, within certain limits, in the foreign languages; the other two, I am sure, would set a high value on the possession of such ability. All insist that the candidate shall have read a considerable amount of modern French prose, and the three which prescribe specific works include in this requirement representative modern plays; they differ in the works prescribed, but that this difference is not radical is evident from the fact that in some cases where the works are different the author is the same. All agree that the candidates should have read something of classic poetry, and they unite in emphasizing here the drama. There is substantial agreement, too, in the classic authors selected, the differences being chiefly in the particular works prescribed. One emphasizes the literary aim in the study of the foreign language, another the practical, the third combines the two aims, and the fourth is neutral. Surely I need not go farther. It is clear, when the differences are so superficial and the agreements so radical, that substantial uniformity is practicable. Such conference and concerted action as have already taken place on the part of the representatives of the English department in the several colleges would undoubtedly result in the same substantial uniformity of requisitions which has proved so helpful to the secondary schools in that department. I earnestly hope that the present session of this association will not close without the adoption of measures looking towards the accomplishment of so desirable a result. In view of the benefits which have already accrued from the coöperation just referred to in the English department, I need not dwell at length on the beneficent results which may reasonably be expected to flow from a like policy in the modern language department. Among these advantages are the following:—

1. Schools which prefer to accept the option of a modern language in place of Greek, but which send their graduates to several different colleges, might have one course of study in the language taken instead of three. They would be relieved of the necessity on the one hand of breaking up their classes into three sections in order to meet three distinct sets of requirements satisfactorily, or, on the other hand, of taxing their pupils beyond the point of endurance in

the effort to meet the three sets of requirements without such breaking up of classes.

2. Schools like the girls' high school in this city, whose graduates, if they enter college at all, enter handicapped, under existing conditions, by a preliminary training that is quite out of relation to the requirements of the colleges, might have a course of study, in one at least of the modern languages, which, with a little adjustment in other directions, would lead directly to those college courses for which Greek is not required. Many young persons have their ambition for the higher education aroused for the first time by their high school course, and, on the completion of it, wish to go on to college. Finding that their work in the high school has been out of relation to the requirements for admission, and that considerable additional time must be spent in supplying deficiencies, they are forced, to their own disappointment, and, in many cases, to the loss of the colleges, to abandon their intention.

3. Fitting schools like the girls' Latin school in this city, which now have but a single course of study, the classical, including Greek, might have, if the number of their pupils warranted (and it is to be noted that the modification which I have advocated would tend to increase the number of pupils graduated from such schools) a second course of study with a modern language equivalent for Greek, the graduates from which would be admitted to regular standing in the college courses for which Greek is not required.

4. The ordinary high school, which now supports, at an expense that occasions intermittent grumbling, a classical course of study, from which a select few are graduated and admitted to college, could combine its collegiate-preparatory and non-collegiate-preparatory classes to better advantage than now. By thus securing greater economy of administration and, further, by giving to those whose preliminary education ends with the high school the wholesome stimulus of association with those who are to go to college, it would earn a heartier support from the community, and take a stronger hold on its affections.

5. Communities in which the free text-book system prevails would be relieved of so much of the pecuniary burden as is due to the purchase of a needless variety of text-books.

6. Pupils who decide late in their course to go to college, having taken no Greek, but having taken a part of the work in a modern language recognized by the college as an equivalent for it, could

without needless sacrifice of time, be transferred from the non-collegiate-preparatory to the collegiate-preparatory course, their work up to the time of the transfer having an exchangeable value, because in the line of the college requirements.

But I will not pursue this enumeration further. These are some of the advantages which might reasonably be expected to result from the adoption of uniform requirements in the modern languages. There are no attendant disadvantages to be anticipated. Moreover, the policy here advocated involves no sacrifice on the part of those adopting it. Shall we not, then, urge its adoption?

*THE TEACHING OF PEDAGOGY IN COLLEGES
AND UNIVERSITIES.**

PRESIDENT CHARLES KENDALL ADAMS, OF CORNELL UNIVERSITY.

The importance of education reveals and determines the importance of the teacher's function. If it be true that there is no interest of the community that is more universal and far-reaching, then it must also be true that there is no vocation that has more to do with the real welfare of the people. If there is any pursuit upon the character of which the future of society, in any exceptional measure, depends, it is fit that those by whom the character of that profession is determined should be exceptionally well prepared for their work. It follows, as a necessary consequence, that the teacher should be trained with special thoroughness for his vocation.

From one point of view this would seem not to be necessary. The teacher in the course of his own training has had abundant opportunities for observing good and bad methods of instruction; and, so far as wisdom can be derived from mere observation, he would seem to have had the means of obtaining not a little knowledge of the art. It has to be admitted, of course, that the vocation of the teacher differs in this respect from almost, or quite every other vocation or pursuit. The lawyer and the physician when entering on the study of their respective professions have enjoyed no special facilities for observing the methods of successful practice. The training of the

* A paper read at Boston, October 12, 1888, before the New England Association of Colleges and Preparatory Schools.

preacher is perhaps the only one that seems to present any very striking resemblances or analogies. But if the student who determines to go into the pulpit has usually had abundant opportunities for observing the methods of the successful preacher, it is nevertheless true that these opportunities do not, in the estimation of the public, exempt him from the necessity of a thorough professional training. No argument for such exemption on the part of the teacher can therefore be drawn from the analogous vocation of the pulpit.

Moreover, experience shows that mere observation is an unsafe guide. At best, observation can teach only the mere method of imparting instruction; whereas no small part of the vocation consists of knowing what to teach and what to leave untaught. Of this part of the work, great and important as it is, no pupil has any opportunity of learning anything by mere observation. It follows, therefore, that the untrained teacher is obliged to pick up at haphazard and by dint of observation, and perhaps long and painful experience, a knowledge of a very large part of the means and conditions of success.

It is not, of course, to be inferred from this that experience is not sometimes the most successful of teachers. Nor is it to be denied that the great and rare art of most successfully imparting instruction is a gift that seems often to have been bestowed by nature herself. And yet who has not observed that sometimes the most successful teachers have grown slowly into their exceptional efficiency by a painstaking experience leading them gradually away from a most unpromising beginning? It would be flying in the face of all observation and experience to deny that many of the best teachers have come up to their present condition with no other helps than the gifts of nature and opportunity; but this important fact no more proves the inutility of training than the successes of Washington and Franklin and Lincoln prove the inutility of a collegiate education. We must, in judging of every subject of this kind, eliminate the exceptional examples of genius, and form our opinions from results on the great uninspired masses of mankind. Let us, then, apply this method, and ascertain, if possible, whether the experience of others has anything of importance to show us. Let us put to such tests as we can command, the two methods to which I refer. Let us compare the results of the two methods as they reveal themselves in the two countries where they have been most thoroughly tried. In doing so, we shall have to place definitely before our minds what has been done in the

two countries selected; and then, as best we can, we must compare the results of the efforts that have been made. Let us take for comparison our own country on the one hand, and Prussia on the other. Prussia is selected, not because its methods are essentially different from those of other European states;—for, in the other German states, in Switzerland, in Sweden, even in France, the primary and secondary schools have been organized and developed on essentially the same plan—but because Prussia was the nation to devise the system; and because it is in Prussia, consequently, that the system has most perfectly borne its legitimate fruit.

In looking at what has been done in Prussia, the first thing we observe is the fact that the organization of the schools has been determined very definitely by State law. By this I do not mean that there are no private schools; but rather that all schools, public and private, are subject to governmental inspection, and are required not to fall below a standard prescribed for the public schools. It was observed by Matthew Arnold, in his celebrated report of 1868, that the public schools of Prussia are generally regarded by the Prussians themselves as superior to the schools established by private enterprise. The public schools are almost invariably preferred by those who desire for their children the most wholesome and robust training. But the difference, in the very nature of things, cannot be very great; for the reason that all private schools, in order that their pupils may be accredited with attendance, and thus satisfy the requirements of the compulsory school law, must be in the hands of teachers who have satisfied the rigid examinations required. The nature of these requirements it is well for us to bear in mind. I do not now refer to the Normal School certificate, or its equivalent, required of every teacher in the primary schools, but rather to the requirements of teachers in schools of a secondary grade. During the first few years of a boy's life, he is commonly in a primary school under the instruction of a teacher who has had the governmental training of three years in a Normal School. A boy who is intended either for a profession or for a business career, then goes either to a gymnasium, a pro-gymnasium, or one of the grades of real-schools. These several kinds of schools differ somewhat in character from one another, in order to adapt them to the varying wants of the people. The pro-gymnasium, I need scarcely remind you, is identical with the gymnasium, so far as it goes, but it stops short of the complete course preparatory to the University. The real-schools, it

will also be remembered, differ from the gymnasiums chiefly in the fact that Greek is not a part of the course; that the place of Greek is taken by English and a somewhat greater amount of the other modern languages. There is also a little more of the sciences, and a little less of Latin. We must keep in mind the fact that all gymnasiums and all real-schools have the same curriculum as all the other schools of the same rank. We should also remember that this curriculum, absolutely prescribed by the government, is one which it ordinarily takes a boy nine years to complete. The schools of this class, then, occupy the pupils from the time they are nine or ten years of age, until they are eighteen or nineteen. The Prussian boy is thus ready for the University at an age but a little, if any, more advanced, than the age of the average student at the time of entering Harvard, or either of the other prominent colleges or universities of the country.

Now the most important thought suggested by this statement comes from the fact that whereas the Prussian student is ready to enter upon his professional studies, with the most complete preparatory outfit at the age of nineteen, the American student is obliged either to forego the college course, or postpone entrance upon professional studies until he is twenty-two or twenty-three. In other words, the American student who completes the preparatory course of college education enters upon his professional studies not less than three years later in life than does the student, with a corresponding preparation, in Prussia. In point of time, then, the American student, as compared with the Prussian, practically suffers the prodigious loss of three years of his life. He may save this time by ending his college course at the close of the Freshman year, or by omitting collegiate studies altogether. It may be true, also, that he will be compensated for this loss, if his training at the end of his collegiate course is so much superior to that of the Prussian, as to pay for three years of his life. But, I believe that no one acquainted with the two grades of instruction and with the results obtained, will, for a moment, claim that the American collegiate training has any such superiority. Indeed, it is doubtful whether the American student, educated in the average high school or academy and college, is at twenty-two, in any sense whatever more thoroughly fitted to enter upon the study of a profession than the German student when he enters the University at nineteen.

In order to put this assertion to a test, let us note what the German student has had. In the first place, in the gymnasium, or the real-school, he has had nine years of study under teachers who must have had, not only the complete preparatory course, but also three years of professional training in the University, and then must have passed a rigid professional examination. This, we must have in mind, is equivalent to saying, that every teacher in the secondary schools must be a man who has successfully passed through these three grades of preparation. He must, in the first place, have received a liberal and rigid training extending over nine years; then a professional training of not less than three years; and, finally, must have passed an extraordinarily rigid examination by a State commission, an examination extending ordinarily over at least five or six days. Such, then, are the teachers in whose care the boy has been in training during the years between nine and eighteen.

Now, let us ask, what, under these circumstances, the boy is able to accomplish. First of all, we shall find the answer to be the same in whatever school we carry on our investigation. We must remember, as I have already said, that in the one hundred and fifty-five gymnasiums in Prussia the courses of instruction are identically the same. Not only the subjects to be taught, but even the authors that are to be read are determined by one general State law. It may further be remarked that in this respect the usage of Prussia is not exceptional, but is the same as that which generally prevails on the continent of Europe. The point to be noted is that almost the only liberty that is allowed the teacher is a determination of the amount of a given author that is to be learned or read within the prescribed time; and, though in this respect the liberty of the teacher is complete, it still remains true that the number of hours really to be given in the class-room to each study during the whole course is immovably fixed. There is, consequently, no such chaos as that which has often been complained of in the United States. Here, there is absolute freedom in marking out the prescribed courses of the different schools; and everybody that has had anything to do with the examining of students for college knows how frequently it happens that a boy who has prepared himself for one college or university, finds himself tripped up, whenever he presents himself at another. A boy who has taken a course at one gymnasium, on the contrary, has pursued identically the same studies as a boy in any other gymnasium within the country. If a pupil is exceptionally brilliant, he may, of

course, do the work in less than nine years; or, if he is exceptionally obtuse, he may require more than the normal amount of time; but neither of these exceptional cases entitles a scholar to a departure in any other respect from the prescribed course.

What, then, is this prescribed course? The student of the gymnasium during the first year has three lessons a week in the several studies grouped under the head of Religion; and two lessons a week during the remainder of the course. The subject embraces Scripture History, Religious Dogma, as embodied in the Catechism, together with the rules of moral obligation. During the first year and the last two years of the course, three lessons a week are given to the study of German; that is German grammar, rhetoric, and literature; and during the other six years two lessons a week. Thus two and one-half lessons per week, approximately, for nine years, are devoted to the study of the mother tongue and its literature. During the first five years nine lessons a week are devoted to Latin; and during the other four years eight lessons a week. Thus Latin secures slightly more than eight and one-half lessons a week for nine years. Greek has to be content with seven lessons a week during four years, and six lessons a week during two years, making an equivalent of a little more than six and one-half lessons a week during eight years. French receives four lessons a week during the second year, five lessons the third year, and two lessons a week during each of the six remaining years; making the equivalent of about three lessons a week during all of the nine years. History and geography, which are taught inseparably, are given three hours a week during the whole of the nine years, excepting during one year, when they receive but four lessons. To the mathematics are devoted four lessons a week during all the years excepting two, when they receive but three a week. To natural history two lessons a week are given during the first five years; and two lessons to physics to what we should probably call Natural Philosophy, during the remaining four years. Two hours a week are devoted to writing during the first two years and two hours a week to drawing during the first three years.

These all make an aggregate of twenty-eight lessons a week during the first year; and thirty lessons a week during all the other years of the course. Before 1856 thirty-two lessons per week was the amount of the prescribed work. In the real-schools thirty-two lessons are still

required during the last six years; thirty lessons during the second and third years; and twenty-eight lessons during the first year.*

I think any American teacher in scanning these courses of study is likely to have his attention arrested by two of their peculiarities. The first is the large number of lessons per week that are required of the pupil in subjects of very considerable severity; and the second is the remarkable prominence given to the study of foreign languages.

*The following is the official schedule of studies provided for all the gymnasiums and real-schools of Prussia:

PRUSSIAN GYMNASIUM.

STUDIES.	Sexta.	Quinta.	Quarta.	Unter- Tertia.	Ober- Tertia.	Unter- Secunda.	Ober- Secunda.	Unter- Prima.	Ober- Prima.	TOTAL
Religion.....	3	2	2	2	2	2	2	2	2	19
German.....	3	2	2	2	2	2	2	3	3	21
Latin.....	9	9	9	9	9	8	8	8	8	77
Greek.....				7	7	7	7	6	6	40
French.....		4	5	2	2	2	2	2	2	21
History and Geography....	3	3	4	3	3	3	3	3	3	28
Mathematics.....	4	4	4	3	3	4	4	4	4	34
Natural History.....	2	2	2	2	2					10
Physics.....						2	2	2	2	8
Writing.....	2	2								4
Drawing.....	2	2	2							6
Hours per week.....	28	30	30	30	30	30	30	30	30	268

PRUSSIAN REAL-SCHOOL.

STUDIES.	Sexta.	Quinta.	Quarta.	Unter- Tertia.	Ober- Tertia.	Unter- Secunda.	Ober- Secunda.	Unter- Prima.	Ober- Prima.	TOTAL
Religion.....	3	2	2	2	2	2	2	2	2	19
German.....	3	3	3	3	3	3	3	3	3	27
Latin.....	8	7	7	6	6	5	5	5	5	54
English.....				4	4	3	3	3	3	20
French.....		5	5	4	4	4	4	4	4	34
History and Geography....	3	3	4	4	4	3	3	3	3	30
Mathematics.....	5	4	5	5	5	5	5	5	5	44
Natural History.....	2	2	2	2	2	2	2			12
Physics.....						3	3	3	3	12
Chemistry.....							2	2	2	6
Writing.....	2	2								4
Drawing.....	2	2	2	2	2	2	2	2	2	18
Hours per week.....	28	30	30	32	32	32	32	32	32	280

It is not my purpose here to discuss these peculiarities, but simply to point them out. It should be said, however, in passing, that radically different as they are from what may be called the American custom, they are in substantial accordance with the proportions that prevail, not simply in all the German States, but also in Holland, Sweden, France, and Switzerland. While in the most of our public schools the pupils from nine to eighteen are put to one form or another of mathematics for from one-third to one-half of all the time spent in the class room; in the countries of Europe the average is in the gymnasiums a little less than one-seventh, and in the real-schools a little less than one-sixth. In America, then, at least twice as much time, relatively, is given to the mathematics as in Europe.

If we were to press the matter of comparisons, we should have to say that the last four years in the gymnasium or the real school, that is *Secunda* and *Prima*, each with its two years, correspond with the four years of the American college course. *Quarta* and *Tertia* in the same way would correspond with the time spent in our best academies and high schools, while *Sexta* and *Quinta* are very nearly analogous to the last years in the American grammar schools. Of course these are approximations only; and there are many who will hold that the student on completing *Prima* is not so far advanced as the American student at the time of his graduation from college. In many respects this statement is doubtless true; but as a training for professional work it may well be doubted whether the hard, steady work to which the pupil is held in the gymnasium and the real-school is not quite equal to that of the American college, even including the senior year.

The quality of the teaching in the upper years of the courses I think will not be found to show a very marked difference in the two countries. I am not sure that the methods of teaching in the German universities are very much better than those of the colleges and universities in the United States. I have no doubt, moreover, that in some of our academies and high schools the character of the work is nearly or quite as good as is ordinarily found in the Prussian schools; but, in the lowest grades of schools our inferiority seems to me to be very marked. The results of the earliest years of the European course, I mean those devoted to teaching the boy, say from the time he is nine years of age until he is fourteen, when compared with the fruits of the courses pursued during the corresponding years in the average American school, are immeasurably superior.

When the average German boy reaches his fourteenth year in the gymnasium, he has had five years of Latin, two years of Greek, and four years of French; while his fellow in the real-school has had five years of Latin, four years of French, and two years of English, as well as in either school the required amount of mathematics, German, history, natural history, writing and drawing. When we compare this with what the American boy of fourteen has had in one of the best even of our public schools, certainly the comparison is enormously to our disadvantage.

Now, for the purpose of being very concrete, that is to say for the purpose of keeping my feet on the solid basis of fact, I will institute a comparison between the lower grades of schools in two cities, one of them Prussian and the other American; neither of them at all exceptional in character; both of them, indeed, fairly representative of the systems of which they are respectively a part. Let us compare the grammar schools, say of Brooklyn, New York, with the corresponding grade of schools in Berlin; not Berlin as the imperial capital of to-day, but the Berlin of twenty-five years ago when it had even a smaller number of families than Brooklyn has at the present time. The number of schools in Berlin is not proportionately greater than in the other German cities; and I believe that the Brooklyn schools are not inferior to those of corresponding grade in the other cities of the United States. Turning to the comparison, then, we find in the first place that in Berlin there were twenty-five years ago eight gymnasiums, six real-schools of the rank of gymnasiums, in all, fourteen schools in which boys could complete a course of study not much, if at all superior to our academic and collegiate courses combined. In the schools of the gymnasium grade there were in Berlin, twenty-five years ago, more than six thousand boys. We find in Germany, then, the lad of fifteen in this situation. If he has been in the gymnasium, he has had there already six years of Latin, nine lessons a week; three years of Greek, seven lessons a week; five years of French at an average of about four lessons a week; besides the prescribed and corresponding amounts of German, history, natural history, mathematics, religion, writing, and drawing.

And now when we turn to Brooklyn, not as an exceptional but as a typical American city, what do we find that the public schools have done for the boy when he has arrived at the age of fifteen? I look at the latest report of the superintendent of the city schools, and I find that the average boy of fifteen has not yet left the grammar school.

According to this report the average age of boys on leaving the grammar schools is fifteen and three-tenths years, and that the average age of the girls is a little greater. Of all the pupils in the grammar schools, only 891 ever reach the first grade; and out of this number only 125 reach the end of the second year in the high school. The average age of the pupils in the high school is seventeen and seven-tenths years; only about a year less than the average age of the German boys when they leave the gymnasium or the real-school for the University. We have seen what the German boy at fifteen has had in the public schools; let us now turn and see what the American boy has had in the corresponding public school at the same age. In the first place it must be said that he has had forced upon him six hours a week in arithmetic, during the whole of the seven primary grades. Then on emerging from the primary school, and coming into the grammar school, he is required to take an average of four hours a week in the same study, during all the eight grades. That is to say, during the whole of the boy's career in school, from the time he is seven until he is fifteen, he has devoted no less than five hours a week of recitations to the study of arithmetic alone. If we deduct the hours devoted to reading, penmanship, and music, we find that five-elevenths of what remains is devoted to arithmetic. Making no deductions, and including the hours devoted to the elementary work requiring no preparation whatever, we find that arithmetic occupies in the class-room considerably more than one-fourth of all the student's time, during the whole of seven or eight years. Besides this, our lad of fifteen and three-tenths years has had history twice a week for two years, and three times a week for half a year; grammar and composition four times a week for four years; algebra three times a week for one year; geography twice a week for four years; and a sprinkling of reading, spelling, observation lessons, drawing, and music. This is all that comes from the enormous expenditure for pupils up to the average of fifteen and more years of age.

I have thus endeavored to place the two classes of public schools sharply in contrast, in order that we may fully realize how inferior our schools really are. I am now speaking of the lower grades of schools; for I believe, as I have already said, that a comparison would not result in the same disadvantage to us if we carried it into the more advanced schools. But I believe that in the primary and lower grades no person of impartial judgment can observe our

schools in comparison with those of Europe without admitting our great inferiority. We spend enormous sums in large and well-arranged school buildings and elegant furniture and expensive school books and then frustrate the purpose of them all by not having the one thing, compared with which, all the other things are as nothing, namely, A GOOD SCHOOL.

How is a change for the better to be brought about? In no other way than by a change of public opinion. This is, of course, the manner in which all reforms in a government like ours must proceed, and a radical change in this respect is absolutely necessary. There is in the public mind no general idea that our schools are inferior. Mr. Matthew Arnold, whose professional office it was to study educational systems, told the people of Europe in his report of 1868, that they had nothing to learn from American methods; and just after the Educational Exhibition in Philadelphia, in 1876, one of our oldest and wisest state superintendents declared that we had more to learn from Sweden and Russia in regard to methods of instruction than Sweden and Russia had to learn from us. But these were simply individual voices, and the prevailing belief in our country has been that, on the whole, so far from having any reason to be dissatisfied, we should be proud of our great and glorious system of free schools, and should abundantly thank God that we are not as other men are.

But then we may ask, in turn, How is this absurd popular optimism to be changed for the better? In no way, I answer, so readily, so rapidly, and so effectively, as by raising up and putting into positions of influence as large a class as possible of teachers who know what education is in those countries of the world where it has been most successful. And this brings me, after what I fear you will think a long wandering, to the subject of the systematic teaching of pedagogy in our schools and colleges.

In every college class there are certain ones who intend to be teachers; and as graduates from college they are to take positions to exert whatever influence can be exerted in behalf of the best educational methods. In all of our towns, it is, after all, the superintendents and teachers who exert the greatest influence in the formation of public opinion concerning our schools. It is, therefore, of great, I will say of unspeakable, importance, that this class of teachers should know what the world has to teach as to this art of teaching, which, as we have seen, in one country does so much, and in another

does so little. It is certain, moreover, that much can be learned; for the study is not one of exceptional difficulty. The literature, especially in French and German, is abundant; and if this is well at the command of the teacher, there will be no difficulty in bringing to the class a mass of most valuable and helpful information.

Instruction in this subject, it seems to me, should consist of no less than four somewhat distinct parts; and these may well form four courses of instruction extending through the collegiate year. As to the order in which the student should take these courses, there may be some differences of opinion; but the courses themselves may be roughly described as follows:

1. The History of Education; ancient, medieval, and modern. While the enterprising teacher will depend chiefly upon lectures for giving life and inspiration to this course, some text-book, probably Compayré's "History of Pedagogy," should be required of the class at the recitations and examinations.
2. The Philosophy of Education. Analysis and discussion of the several theories that have prevailed, and that now prevail, in regard to the development of the human mind. This will involve, of course, a consideration of the educational values of different studies, and of their effects on the growing mind. More psychological than any of the others, this course will depend for its success upon the philosophical bent and skill of the teacher. But the successful study and teaching of pedagogy, as a science, must rest very largely upon a psychological basis; and hence the best teachers have always laid considerable stress on this method. Paulsen, at Berlin, and Hall, at Johns Hopkins, were both teachers of philosophy as well as pedagogy in its more restricted sense. Payne, formerly of Michigan, but now of Tennessee, has given such a course with most satisfactory results.
3. Methods in the School Room. This is the practical side of the work, and should embrace a discussion of such questions as the art of teaching and governing; methods of most successfully imparting instruction; general school-room practice; general school management; the art of grading and arranging courses of study, and perhaps, the conducting of school institutes. This course, like the first, though dependent chiefly on the lectures of the Professor, should be accompanied with the careful use of some text-book, say Fitch's admirable "Lectures on Teaching."
4. The Teachers' Seminary. Here should be freely examined and discussed the most obscure and difficult problems that confront the

teacher. A comparative study of educational systems may well form a part of the work here carried on. There should be the utmost freedom between Professor and student; indeed, in every respect, the meeting should have the informality of personal conference, rather than the formality of any approach to official relations.

Then, in addition to these courses, there may well be given by professors in the leading departments of the college or university courses designed exclusively to instruct how to teach young pupils the subject in hand. This is done in some of the universities of this country, as well as in many of the universities of Continental Europe. In the German universities it is carried not only into a theoretical discussion of what ought to be done, but also into the practical work of actual instruction. Some years ago I accompanied a class with Professor Masius, to one of the city schools of Leipzig, to witness an exercise of this kind. One of the Seminary students was put in charge of the class for the lesson of the hour, and the work was all done in the presence of the Professor and of the other members of the Seminary. Each of the members received practice of this kind, and the work of each was subjected to searching review and criticism by the other members and by the Professor, at the next meeting. The spirit of the exercise throughout was that of men who were putting the finishing touches to work in preparation for a profession of which they were proud, and to which their lives were henceforth with enthusiasm to be devoted. These, and such as these, are the men who teach the boys of Germany during all of the school days between nine and eighteen.

That in our own country we can at present have teachers thus trained and equipped to teach our boys during their grammar school days seems indeed too much to hope. Before that happy day comes, public opinion must undergo a revolution. But, until then, let us restrain all vain boasting; and, so far as is possible, bear ourselves with becoming humility. But in the meanwhile, be it long or be it short, what more promising method is there of changing public opinion than by the professional teaching of pedagogy in our colleges and universities?

WHY DOES THE NUMBER OF STUDENTS IN AMERICAN COLLEGES FAIL TO KEEP PACE WITH THE POPULATION?*

PROFESSOR TRUMAN H. SAFFORD, OF WILLIAMS COLLEGE.

After my promise to read the present paper was made, President Eliot published his excellent article on a nearly related subject in the *Atlantic* of last August, which I presume all here present have read. It is hardly necessary for me to go over the ground he has so well covered; and I shall avoid doing so, as far as I can.

The statistics which he has employed are those of the Bureau of Education, as given in their summaries for the ten years between 1875 and 1885 inclusive, in the Report for the year 1884-5. One conclusion which Dr. Eliot drew from this report is somewhat modified by the later figures given in the Report for 1885-6, page 489; the ratio of increase from 1876 to 1886 is twenty per cent; it was sixteen from 1875 to 1885; and the figures for 1877 and 1878 seem to show that this value is not abnormally increased (as he had assumed) by a remarkably small value for 1876.

At the same time it is quite impossible by any fair manipulation of the figures to avoid the main conclusion drawn years ago by President Barnard, that the increase in the number of our college students is not, on the whole, in proportion to that of our population; and we may be justified, I think, in the assumption that the rate of increase of the population is considerably greater than that of the number of genuine male college students. The women's colleges are too new not to exhibit an abnormal rate of increase; and the same thing is true in some degree of the scientific schools.

These latter are rivalling the colleges, and drawing away a sensible portion of their attendance, if we can fairly call it so; the tendency is quite marked in some of the large preparatory boarding schools, as I am informed by friends who are teachers.

The women's colleges compete with the men's, only very indirectly. Graduates from both frequently seek employment as teachers for a few years after graduation; and the competition of the young women

* A paper read at Boston, October 13, 1888, before the New England Association of Colleges and Preparatory Schools.

is perhaps sensibly felt in this field by the younger alumni of the men's colleges.

But the fact is very significant that higher education, taken as a whole, hardly keeps pace with the population, so far as the attendance on all the schools can be taken as evidence.

Several things, however, must be noticed before we can draw accurate lessons from our statistics. First of all, what shall be called a college? The statistics employed by Dr. Eliot, for instance, give in 1885 the number of 65,728 students in 365 colleges. As, in 1885-86 346 colleges only are mentioned, I infer that the figures for 1885 refer to the report of 1884-5; but the report for 1885-6 certainly includes a number of very doubtful institutions. Such is the college which has 105 Freshmen, 38 Sophomores, 12 Juniors, 10 Seniors, 274 students in the "partial course," and graduated nine bachelors of science and three bachelors of arts.

The very number of "college students"—about 1 to 900 inhabitants in this country—is considerably larger pro rata than New England can boast, and rather larger than even Massachusetts indicates.

I have added up enough of the figures to find that the summary given by the commissioner includes students in all departments of the colleges in question; some of them are wholly female colleges, and a great majority have preparatory departments often exceeding the college proper in the number of students.

When, in order to get a more exact and equal statement, I confine the examination to New England colleges for men, and in them I exclude women students, and omit altogether the separate technical schools, as well as the Chandler and Thayer schools at Dartmouth; I find the following results.

In 1838, college students in New England, 2,098.

In 1886, college students in New England, 3,904.

But of these 208 are in "scientific courses" in institutions other than Dartmouth, and 266 in "partial courses;" leaving 3,430 as the number of genuine male candidates for the degree of Bachelor of Arts in 1886, against 2,098 in 1838; or an increase of 64 per cent in 48 years. This includes the altogether phenomenal growth of Harvard, which is not altogether fair, as many of its students come from outside New England, whose population, as near as I can reckon, has very nearly doubled during the forty-eight years. The relative falling off is then eighteen per cent (one-half of 200-164) during the time when the population has doubled. What are the causes?

If we employ the methods of the calculus, we shall find that the annual ratio of increase of college attendance in New England is not quite three-fourths the annual ratio of increase of population. We find at once in this comparatively slow-growing community, with its well-established colleges, without preparatory departments, a better state of things than in the country generally.

For this there are obvious reasons; one, which is especially important, is that college preparatory schools in the West and South are rapidly displaced by the public schools.

These so-called "preparatory departments" very rarely refuse pupils who are not in any sense college students, either in present or in future. The school provides all sorts of classes for all kinds of pupils, in the hope, it may be, of inducing them to remain and finally attend the college; but very often without any such hope, simply for the tuition-money. The school is a rather ordinary academy. If it were practicable to find out from the Commissioner's report precisely who are college students in the states west or south of Pennsylvania, it would furnish interesting results; but many trials, with a pretty fair knowledge of the situation in Michigan, Illinois, and Wisconsin, have convinced me that it would require very careful studies of the original data. Even in New York City, there is the "College of the City of New York," formerly the "Free Academy;" an institution with a five years' course, *one year* of which is preparatory; and in this year the classics are begun, while at the end of the fifth year the degree of Bachelor of Arts is given.

I do not know how much better a scholar a graduate in arts of this school is than one who has completed the course in the Boston Latin school.

So I have been obliged, after many trials and experiments, to content myself with the conclusion that in the United States, genuine college attendance increases at from one-half to three-fourths the rate at which the population increases; if we take the average we shall not be far wrong.

In other words, multiply the average yearly per centage of the increase of population by five-eighths and you will have the increase in attendance in the men's classical colleges.

We may mitigate this rather unpleasant state of facts more or less by dwelling upon the admirable results of the women's colleges and the scientific schools; but I would prefer, for a while, to look it in the face, and see what is its meaning.

1. The character of our population has greatly changed within the half-century, and is still greatly changing, by immigration. We do not find that the sons of foreigners attend our colleges to so great an extent as we should expect from their mere number; and the reason is that the immigrants usually educate their children either in the public schools or those which favor their nationality, or their denominational connection. The colleges are in a sense private institutions of the native population; while the foreigners are accustomed to depend upon the state or the church for the schooling of their children. Along with the Catholic parochial schools there are many which are Lutheran or Reformed; that is, are parochial schools to Lutheran or Reformed churches.

2. The public schools do not prepare their pupils primarily for college. The public school system is continually tending to form by itself a closed series of institutions, where beginning and ending are under the control of the same authorities. And the thoroughly democratic character of the schools renders it difficult to join to them proper college preparatory schools or departments. Boston is in this respect exceptionally situated. The oldest school here is the Latin school, whose tradition is to receive its pupils at an earlier age than the ordinary high schools, and take time enough to give them a thorough preparation for college before the proper college age has passed. Just as far as it shall be possible to found similar schools elsewhere in the country it will be practicable to diminish the age of entrance into colleges and hence to increase the number of students. The parochial schools lead to denominational colleges only quite exceptionally.

The tendency in the population to accumulate in the large cities brings the city schools very prominently before the minds of fathers as well as of sons. The latter, as they grow towards manhood, are apt to prefer the easier present paths, and these lead away from Greek if not from Latin; while the varied attractions of city life restrain intellectual tendencies in the minds of many boys, and the variety of careers which they see opening before their older school-mates leads to a strong tendency to follow business rather than classical courses. This cause is highly effectual with the foreign immigrants; but hardly less so with many native Americans.

3. But the colleges themselves are not altogether without responsibility. To see precisely how this is, we must look back to their history.

All modern universities have grown out of the beginnings made at Paris and Bologna in the middle ages. The word university, I need hardly remind you, has nothing to do with universality of teaching, but is merely another word for a teaching corporation. Shortly after the Reformation the English universities were given into the hands of the college authorities, and the mediæval constitution, which was far more democratic, came to an end. In the next century after this change had been made at Cambridge, Harvard was founded as a college, very much after the model of Emmanuel, and Harvard was followed by Yale, and after our Revolution by the other New England colleges; in the colonial times there was a very striking similarity between the English colleges at Oxford and Cambridge and those of New England.

Had Oxford and Cambridge been then farther advanced in the road to become modern universities, the American foundations would have felt the effects.

The continental movement by which the German, the Dutch, the Scandinavian, Russian, Italian, and Austrian universities have grown into their present condition awakened but a feeble echo in Oxford and Cambridge, which were insular and went very much their own way. While Oxford and Cambridge were merely a series of colleges, and were held back in their development by this circumstance, they grew to large dimensions, and had for a long time the exclusive privilege of granting academic degrees in England.

In America the result of this state of things has been to produce many excellent colleges, with some which are less worthy, but they all retain some important points of the English academic constitution.

They are so far universities, that they grant, in one sense, academic freedom of study. Actual instruction is rarely given to the individual student for more than three hours daily, or sixteen hours weekly; he is supposed to be a student, to have his own lodgings where he studies and prepares himself for his recitation; the word, significantly enough, came from England, where it has long been displaced by "lecture" with the same meaning.

The American college student is under the instruction of a professor, or a tutor, or an instructor; not of a schoolmaster.

The English university in 1636, or later, was not merely a preparatory school; it was, in a certain sense, a professional school for the study of Theology. In it the faculties of law, medicine, and music were represented, but feebly; a great part of the students were dis-

tinctly preparing themselves for the ministry. Under this idea arose the Hollis professorship of Divinity at Harvard, which far antedates the Divinity School.

Now on the continent the institutions analogous to our colleges have developed very differently. A student who, now-a-days, attends a German university, does so to pursue at once some professional study. There is no ambiguity about the relations of the upper and lower schools. He goes at once from school to the university; if he matriculates in the philosophical faculty he does not intend afterwards to pass over to that of law, medicine, or divinity, but to study some profession, either teaching or practical science, in the philosophical faculty itself. The great majority of such matriculates actually pass the higher teacher's examination. The idea that before becoming a "bachelor" of divinity the student must have become a bachelor of arts, is not there entertained.

Our colleges, as they now stand, are about half way between the continental gymnasia and the philosophical faculties of the universities in Germany.

The gymnasia are the high schools of the countries where they exist. They have, although remaining schools, gradually absorbed the old faculty of arts, practically to the bachelor's degree. This has been effected in Germany partly through that enormous lever, the compulsory military service of Prussia. As soon as the fortunate scholar has passed his six months in *Unter-Secunda*, pursuing all studies, he is privileged to substitute one year's service in the army for three years; provided he can maintain, equip, and clothe himself; and can take this one year's *volunteer* service at a time and place which are convenient.

No wonder that town and city authorities are ready to make great exertions for these schools, or others giving the same privilege; and the central government itself has shown a great degree of liberality in helping on the cause of secondary education. A mere recital of the number and kind of these schools in a single province, will help make clear some points to be noted.

Brandenburg is a province of Prussia, whose area is 724 square German miles, or about 15,400 English square miles; with 2,863,195 inhabitants, according to the census which Dr. Wiese used in 1874. So that we may fairly enough compare this province, both as to area and population, with the three states of Massachusetts, Rhode Island, and Connecticut. Now in 1874 Brandenburg had in all,

besides the great university of Berlin, with its 4,000 students, fifty-five higher schools in the German sense. Of these 28 were gymnasia, 2 progymnasia, 16 realschulen, 9 höhere Bürgerschulen. The total number of teachers in these schools, who must have been educated at a university, was nearly eight hundred, or about 14 to a school. There were in Berlin itself, a city about twice as large as Boston, 10 gymnasia, 8 realschulen, 1 "higher burgher school." Of the gymnasia the largest had 674 scholars, 22 teachers of university training, and 8 elementary and technical instructors; the smallest was the "French Gymnasium," with 246 scholars and 16 teachers (3 of them elementary teachers only).

Outside of Berlin the schools are smaller; that at Spandau, a city of 16,476 inhabitants, eight miles out, had 15 teachers and 253 scholars; Potsdam, sixteen miles away, with 38,359 inhabitants, had both a gymnasium and a realschule, with 32 teachers of university training.

The Prussian gymnasia are, I think, more thorough than those of most other parts of Germany were until lately. Their "maturi," or graduates as we should call them, are on the average very nearly twenty years old; and thus correspond, in age, about to our Sophomores. They have, however, been trained for nine years, and in all but elementary and technical subjects by university men. The age of entrance is nominally *nine*; but various reasons combine to make the age of leaving or "maturity" greater than this would bring about. The pupil is examined for entrance, in reading, writing, spelling, writing from dictation, and arithmetic through the four ground rules in whole numbers; and, if he has attended the "Vorschule" of the gymnasium, has been a primary scholar for about three years.

It will be seen from these statements that our colleges are hampered by their ambiguity of position and nature. As they are not strictly universities, the students do not consider that they begin their professional education with Freshman year; while, as they are not schools, the Freshmen, and especially the Sophomores, cannot be dealt with as the Unter and Ober-Primaner—boys of nearly the same age—are treated in the German schools.

Here is the weekly duty of the Unter-Primaner at the Mary Gymnasium of Stettin, a city not so large as Providence, with two gymnasia and two realschulen:—

GERMAN, 3. Mediæval literature, essays, declamations, psychology.

LATIN, 8. Exercises in writing and speaking. Cicero's Letters on Tusculan Questions (selections); De Oratore. Horace's Odes, selections; metres; committing odes to memory.

GREEK, 6. Exercises in writing and speaking. Plato, Apology, Euthyphro, Crito (or selections from Phædo). Demosthenes. Philippics. Homer's Iliad, first half. Sophocles, two tragedies. Memorizing passages.

FRENCH, 2. Exercises. Memorizing. Reading of Napoleon by Dumas, Agnèr de Méranie by Pousaw, the Cid by Corneille.

HISTORY, 3. Middle Ages. Review of Ancient History. Geography.

MATHEMATICS, 4. Series, Combinations, Binomial Theorem, Solid Geometry.

PHYSICS, 2. Electricity and Mechanics, or Heat and Meteorology. Optics, Acoustics.

RELIGION, 2. Greek Testament, St. John's Gospel, and 1st Epistle; St. Paul's Epistle to the Romans.

GYMNASTICS, 2.

The American Freshman certainly has not so much work to do; his hours in class are *sixteen* weekly. At Harvard the absolute requirements correspond in some degree to those quoted in the mother-tongue, French and Physics; while the Freshman elects *nine* hours of work from the subjects in which the German has twenty-three hours weekly required.

The German pupil begins his classical education at the age of eleven, upon the average; there is the same tendency as here for country boys to prolong their elementary education until they can go away from home to school. He remains, as was said, in the gymnasium *nine* years, till the age of our Sophomores, and has by that time finished his general education, and is ready for his professional training.

Our students begin their classical education, it would seem, at the age of about fifteen and study from three to four years in preparation for college, which they reach by eighteen or nineteen. Their school training proper is now completed; they take up the old academic method of study, often work on a required course it is true, but with much of academic freedom in their method of preparation, and are no longer confined to school hours. They are kept under this method of study, with more and more freedom, until their age is on the average twenty-two or twenty-three; or nearly that of the average candidate for the doctorate of philosophy in Germany.

Our system is in this respect quite an ancient one; we expect an academic degree, that of bachelor of arts, to be taken before professional studies are begun; and the higher we raise the standard for

the bachelor's degree, the more difficult we make it for parents to send their sons to the colleges.

On the continent the case is quite different. Almost all the large towns in Brandenburg, for instance, have gymnasia. To compare our condition with the state of things there, we should need to imagine schools in Newburyport, Lawrence, Salem, Newton, Dedham, Bridgewater, or Brockton, which should send pupils to Harvard, supposed like the German universities; and should prepare them indifferently for the post-graduate course in arts or the medical, law, and divinity schools. I ought to admit here that a considerable fraction of the Harvard undergraduates' work is now of university character; so that our supposed schools would prepare their pupils for the Senior year, we will say, of the arts faculty; but at an age two years younger than the students now reach that point. When we look at the personnel of these imaginary schools a little, we find that Newburyport would be expected to maintain, in its chief high school for boys, *fifteen* teachers of university education; but with help from the State government, because about one-half of its scholars would come from the vicinity and not the city itself.

The fact is, however, that our colleges are locally too far apart for high schools, and sometimes too near for universities; they hold, in geographical position, about the same middle place that they do in character. Men are unable, or unwilling to send their sons away to college as often as it would be desirable. Both here and in Germany the local schools attract many pupils; and it is precisely the increase in the number and the great improvement in standard of these local schools which makes their pupils so many and so thorough, when the influence of the *Beorehsigungen* furnishes a motive for attendance. It must be remembered that the latest three years and a half of the course are not required in Germany for the one year volunteers; the impulse to attend in these classes is due to the university privileges and other rights of those who remain at the school and complete the course to a higher point.

It would be useless to attempt to forecast the future of our colleges. We may take it for granted that new ones will from time to time be founded, even in New England. Within half a century four have been added; Bates, Boston College, Boston University, and the College of the Holy Cross. We have already three universities with the full complement of four faculties; Boston, Harvard, and Yale, and another in progress at Worcester. In place of prophesying what the future

of the colleges will be, let me make a few general remarks about their past history and their present duties, considering the rather doubtful outlook which our statistics present.

There are many broken-down colleges in this country; institutions which never had more than a meagre endowment, perhaps not very wisely managed. There have been many worthy clergymen who considered themselves adapted to become college presidents; and who, if living in the West, have attempted to establish such institutions. This has given rise to much fluctuation, and many wrecks; the feeble light of such a college gradually dies out, or it becomes an academy in name, as in reality. Sometimes colleges are planted too thickly in a small and not very progressive region, and all languish; sometimes a flourishing institution is brought low, or a struggling one prevented from rising, by dissensions in the faculty; sometimes president and faculty grow old and stagnate together. Wise administration will do much to prevent these evils; but, without other light than that of tradition, the general situation will not be much altered.

I cannot be far wrong, I think, in urging the necessity of a study of the circumstances. We need a branch of knowledge in the line of pedagogy with specific application to our institutions. The attempt to improve college teaching may not always be judiciously made, and is very apt to meet opposition from ultra-conservatives. This is but a result of the ordinary forces of human nature; and when it seems necessary to go forward it is not always possible to select the right direction and speed of movement.

At Cambridge and Oxford the reform movements met severe opposition from some of the ablest men there, who preferred the old way; and our American colleges must now improve or perish. They are now, however, rapidly gaining in spirit and methods. Young instructors are oftener required to have some special knowledge of their subjects; they are sometimes encouraged to gain knowledge by increasing the world's science; greater freedom in methods of teaching now prevails. The natural method, which all great teachers, from Socrates down, have employed, is coming more and more into vogue; the scientific schools have caught the modern spirit and learned modern methods, and imparted them to the colleges. Our historical professors no longer teach from text-books only; our classical scholars, are improving their teaching; while the modern languages and many other subjects are now learned in a more practical manner.

I will not encroach upon President Adams' ground farther than to say that I think the theory of education and instruction, and the history of American colleges, ought to be more thoroughly studied. The means which I found available for really investigating the question assigned me were very scattered; and I am quite sure that a profound study of these questions from original sources would be very important. Of course we cannot offer very thorough electives in pedagogy until our professors of this science have mastered not only its principles but its applications; yet I would very gladly see the effort made to begin such instruction. For the future of the colleges depends very largely upon their relations to the preparatory schools; and these again very greatly upon a feeling of mutual confidence. If we can, by elective instruction, assist our young alumni to become better teachers, to avoid routine, and make their teaching living; if, too, our own instruction is alive and modern in its methods; we shall lay the best possible foundation for our future prosperity. The contrary would be the case if the colleges and schools should become more and more estranged in their methods and sympathies.

As a specimen of the kind of questions I would like to have intelligently discussed is one which I venture to suggest.

The colleges, almost unanimously, give *sixteen* hours a week of instruction; or nearly that number. This is a pretty old tradition of Cambridge, England; should not the number be increased to twenty, or even more? One result of such an increase would be to give the idler members of our classes more to do; even if no more preparation were required than is now given. The German gymnasia do a very large part of their work in the class-room; and the same is true, I think, of all similar continental institutions. With sixteen weekly hours of work in the class room the amount of preparation which can actually be enforced on the idle men is far too small for their good, while with more hours of class-room work the teacher's attention need not be so exclusively given to judging and driving, as Dr. Eliot well expresses it. If we continue to divide our students into honor and "poll" men, as the Cambridge slang has it, we find pretty surely that the "poll" men are too idle. The average student is much better looked after on the German system, than he is in the polytechnic schools of this country. I do not bring up this question so much for a discussion upon its merits as to indicate a class of problems for whose solution we need to use both history and theory rather than tradition, imitation and empirical methods.

We may infer, I think, from the past, that our colleges as a whole will grow, but more slowly than the population. Yet this slow growth has not prevented a noble advance in the standard of learning. It is due, I think we can see, to their peculiar character and relations to the community. Their actual position is intermediate, between a school of general education and a university; we may infer that the future course of events will make them less and less schools of general education, and more and more universities; and that their slow growth in numbers is due in great part to this unconscious change of purpose. Of course unless radical changes are made the two classes of students will still attend them; but the general training which they give will be gradually diminished, relatively to the other, by the increase in local high schools; and the tendency to university methods and aims will slowly become more prominent. That is, their list of graduates will show an increasing percentage of men devoted to higher teaching and the scientific professions. The time is probably far distant when the schools for the learned professions will be good enough, and the city high schools advanced enough to meet and supply the lack of college training between them; but, if this time ever does come, the colleges will still have adequate reason for existence. We can only praise the high-schools for well teaching the elementary studies; but in so doing they are certainly advancing upon ground formerly occupied by the colleges.

While writing these pages I came upon a Harvard class report—that of 1837—where I found the ages of entrance of all the members of the class so far as it was known to the secretary; whether of graduates or non-graduates. The Nestor of the class was a dear old friend of mine, with whom I have often discussed pedagogic questions, who was 26 at graduating; the youngest man was 14 at entrance. The average age at entrance was rather over 17; but the majority were I think then nearer 16 than 17. Very many were between 15½ and 16½; and the course of the Latin school from which some entered was five years; so that the custom certainly was for boys to enter that school at about eleven.

The course in all our colleges has been greatly changed within the last half century; the elementary branches which are necessary for the study of any profession have been put farther and farther back, to make room for more advanced ones and a greater variety; and in the New England colleges generally, special electives of a technical character have been introduced, to the great benefit of those

who wish to become college professors, teachers in high schools, or masters of city grammar schools. All this, the advancement of the standard no less than the introduction of electives, is a step in the direction of the continental university; but, has had the inevitable effect of raising the age of admission and thus of keeping down the number of students. The increase of age within the last half century has, however, been much more sensible at Harvard than at Williams, for example; for on the one hand Williams has never had the considerable number of young students who have gone to Harvard from the preparatory schools in and about Boston; and on the other hand the course has not been so rapidly advanced at Williams, while Harvard has lately drawn great numbers of older men from various parts of the country.

To summarize what I have said, I need only employ a few sentences:

1. The attendance upon the colleges is increasing, but less rapidly than the population.
2. Where the population is stationary, or nearly so, the total college attendance begins to fall off.
3. The first cause effective in producing this state things is foreign immigration.
4. The second cause which acts in the same way is the improvement in the public schools and their tendency to unification; connected with the growth of large cities.
5. The third cause is the tendency in the colleges to advance their standard and become universities.
6. All these causes tend to break down the weaker colleges.
7. Although the situation is rather serious it is by no means threatening; on the other hand sound education is *on the whole* rapidly gaining.
8. The colleges can help themselves: a., by improvements in teaching and general progress; b., by a careful study of the situation from a pedagogic stand-point; c., by interesting themselves in the theoretical and practical preparation of high-school teachers; d., by gaining a hold upon the population of foreign descent; e., and lastly, by entering cordially and sympathetically into the work of this society.

In this paper I have left out of sight questions as to the general make-up of the college course, because the colleges are, so far as I know, ready to accept and graduate any large body of well-prepared students that offer.

Since writing this paper, our excellent Secretary has kindly sent me a proof sheet of the N. E. Journal of Education, which he obtained by the courtesy of the editor, Mr. Winship. The tables show an increase of 26 per cent in number of college students during the last 10 years before 1885-6; the same 10 years in which the *total* number of students increased 20 per cent, as I stated in the beginning; this latter estimate includes preparatory students. As the commissioner estimates the increase of population at 25 per cent, it would appear that the colleges were now actually gaining more rapidly than the population. The differences in the figures for 1875-6 and 1885-6 include, however, several elements which must be eliminated before a fair comparison can be made:

1. The number of women students in the men's colleges has increased within the 10 years.

2. The report for 1875-6 includes about 300 students in partial courses; that for 1885-6, 4,651, if I have added correctly. Of these partial course men 1521 are in 10 institutions each of which has more than 100, and all the 10 have but 1,416 in regular course; against 1,019 reported from the same colleges in 1875; showing that for this large portion of the 4,651 the partial course men were counted in 1885 and not in 1875. I presume the remainder were very little noticed in the report of 1875. As near as I can make out these two courses have added at least 3000 students in 1885 more than in 1875; so that the increase of 7,072 between the two epochs is much too great; the 26 per cent diminishes to about 15 per cent against 25 per cent of population.

3. The report for 1885-6 includes a considerable number of colleges with high school courses, or mere academies; but the same may be true for 1875-6; in which the celebrated "One Study University" appears.

OFFICIAL REPORT OF THE THIRD ANNUAL MEETING OF THE NEW ENGLAND ASSOCIATION OF COLLEGES AND PREPARATORY SCHOOLS.

The third annual meeting of the New England Association of Colleges and Preparatory Schools was held at the College of Liberal Arts (Boston University), on Friday and Saturday, October 12 and 13, 1888.

FRIDAY AFTERNOON.

The meeting was called to order at 2:45 P. M., by the President, Professor Charles E. Fay. A summary of the records of the second annual meeting was read and approved. On motion of Dr. Robert P. Keep, the President was authorized to appoint a Committee on Nominations. The following persons were thus appointed: President William F. Warren, Dr. Moses Merrill, and Mr. Joseph Hall.

Mr. John Tetlow, Head Master of the Girls' High and Latin Schools, Boston, presented a paper on the question: "*Is a Modification of the Present Modern Language Requisitions for Admission to College Desirable and Practicable?*"

The paper commanded the close attention of the audience, some seventy-five in number, and gave rise to an earnest discussion.

Professor Adolph Cohn, of Harvard University, was the first speaker. He expressed his substantial agreement with Mr. Tetlow, but mentioned some special points in which he would differ from him. He deprecated the summary putting aside of German in the treatment of the subject, for there is a vast difference in the preparation in the two subjects on the part of the students who come to Harvard. Many seem to have very slight preparation in French, but those who present themselves in German are usually well prepared. He also felt that it was unfortunate that Mr. Tetlow had formed his judgment solely upon the statements of the Harvard Catalogue, in which the references to any one department are necessarily meagre. Other sources of knowledge were accessible. Harvard does require answers in French, and does not require finished translations of the classics. No English or American man of letters has yet translated Molière or Racine adequately, and, of course,

impossibilities are not expected of applicants for admission to college. The main object of the elementary and the advanced requirements in French is the knowledge of the language, not of the literature. It is required that the applicant shall show ability to read French well, and to grasp the constructions of the language, either in translation from English to French, or in answers to questions relating to the subject matter of books read. Thus far Harvard has not laid great stress on conversation in its elementary work. A knowledge of the pronunciation is required, and Professor Cohn himself would like to have writing from dictation introduced to show ability in recognizing French words by sound.

As to the books named in the catalogue, Harvard does not feel bound to the titles there suggested, but is not remiss to the moral influence of the works chosen. Mr. Tetlow's criticism on "*Le Gendre de M. Poirier*" is well nigh an absolute slander. He fails to mention the brighter features, as the sublime character of the nobleman, the self-devotion of the bourgeois, and the female heroine,—an embodiment of all that is good in woman. This book has been chosen after careful deliberation because of its masterly style, and because it admirably shows a peculiar state of French society some seventy years ago. Here is the main difference between Mr. Tetlow and himself. The French and German departments of Harvard have the opinion that the study of modern languages is not worth having if it fails to enlarge the sympathies and to liberalize the mind. The English speaking peoples have too low an opinion of what arises beyond their boundaries. Modern language study should tend to overcome this, and reveal the different ideas of other nations. The book has a good moral influence. Ignorance is not innocence; in seeking the latter the teacher ought not to breed the former. As to "*Dosia*," Professor Cohn had little to say. Perhaps "*Perdue*" is better; he had not read it. "*Les Enchantements de la Forêt*," so highly praised, is good, but is written in a style hard to understand, and certain to become obsolete.

One difficulty in the way of reaching a uniform requisition in modern languages is the varying aims of students in the colleges. Young men study for the literature, philology and disciplinary value of the work, while young ladies desire a practical acquaintance with speaking, writing and reading the lighter literature. Possibly this difficulty is not insuperable.

The requisitions of Smith College name two grammars. In his opinion none should be named, because no one is superior. The professor then with much skill suggested the failings of one and another of the grammars in use, and closed with the expression of an earnest wish that all might employ a common nomenclature, especially in respect to the tenses of the French verb.

Mr. Tetlow rose to correct an erroneous impression concerning his brief reference to German. As the field was broad and the necessity for condensation imperative, he confined himself to French; but the annoyance and distress caused by the varying requisitions is as great in one language as in the other.

Dr. C. F. P. Bancroft, of Phillips Academy, Andover, expressed his extreme interest in the paper, because it illustrates a range of difficulties existing in several departments of preparatory study. Great progress has been made in removing these difficulties in English; the modern languages offer a most inviting field for further action. Mr. Tetlow's paper seemed to him a model of the kind of discussion needed. It is not improbable that within ten years both French and German will be required for entrance to college. At present the advanced electives are not a full equivalent for Greek in respect to difficulty. This he hoped would be remedied. He mentioned other changes that were desirable, and drew special attention to the difficulties arising from the lack of uniformity, in schools that send large numbers to college each year.

Professor Rosalie Sée, of Wellesley College, suggested that Mr. Tetlow had drawn his information about the French requirements for Wellesley from the calendar for 1887. The new calendar would show certain important changes, which she mentioned. She stated that the scientific students (those presenting advanced requirements in modern languages instead of Greek) formed a larger percentage this year than ever before, and that fewer conditions were received.

Professor William L. Montague, of Amherst College, explained the situation at that institution. The Freshman may present either French or German, and then pursue an advanced course in the language presented. He may also begin either language. Amherst will welcome uniform requirements in French and German which shall include the elements of grammar and the reading of easy prose.

Professor Carla Wenckebach, of Wellesley College, stated that the requirements for entering the Freshman class in German were:

1. A distinct and almost faultless German pronunciation, which is acquired at the outset by a course in phonetics. 2. A knowledge of the important rules of elementary grammar. The student should be able to state these rules in German, and to illustrate them by original examples. This will be accomplished if the grammatical study is conducted from the beginning in the German language, using English only when the meaning of some difficult word or passage is misunderstood. 3. An ear ready to understand German spoken by a native, or a foreigner who speaks like a native, and ability to understand an easy novel, or an easy lecture in German by the instructor. This will be acquired if German is made the language of the classroom and the student has frequent opportunity of listening to connected talks given by the teacher. 4. Fluency in conversation upon simple topics. This is accomplished by requiring students always to recite in German, by requiring them to reproduce in German the contents of stories in their reader, and by giving object lessons according to Pestalozzi's *Anschaunungs-method*, the teacher leading the student to express himself easily and correctly upon such subjects as house, school, furniture, the animal, vegetable, and mineral kingdoms, topics from geography, astronomy, physics, etc. These conversational object-lessons are intended to furnish the student with a good vocabulary and a number of idiomatic expressions. The conversation should be carried on in a practical and systematic way, and should not be a mixture of everything and nothing. 5. Ability to translate easy German at sight; for instance, selections from a Reader, *Märchen* by Grimm, Anderson, Leander, "*Immensee*" by Storm, "*Der Neffe als Onkel*" by Schiller. 6. Ability to translate easy English into German, to write simple original compositions on easy subjects taken from every day life. 7. Ability to understand and recite some short specimens of lyric poetry. Instead of the dramatic poetry of Schiller and Goethe, which the students in the preparatory course can neither understand nor relish, it is wise to offer them the easier selections of the best lyric poetry which they are able to master and do enjoy. German literature, as is known, furnishes a choice treasure of *Lieder*. The earlier the students are led to this ever refreshing fountain, the more fruitful their study will be. The study of poetry forms a desirable contrast to grammatical and conversational exercises, and gives the mind relief; furthermore it inspires them to penetrate deeper into German literature.

The great fault I have to find with many students is their superficial preparation in the different branches of the elementary work. They have slighted these to gain time for reading the Classics, as "*Wilhelm Tell*," "*Nathan der Weise*," sometimes even "*Faust*." Because of the limited extent of their previous knowledge they were not able to make a thorough study of them, simply drawing words from a dictionary and exchanging German expressions for English ones. Hence they have hardly grasped the sense of the work, and yet have lost valuable time that should have been given to elementary work. They have spoiled a classic masterpiece, they have spoiled their elementary preparation, and the college professor who receives them is not well pleased with the spoils.

What would a professor of Greek say to a candidate for the Freshman class who, instead of learning the elements of grammar and carefully reading several books of the *Anabasis* and the *Iliad*, had made a pretence of reading Aeschylus' *Prometheus*, Euripides' *Medea*, and Sophocles' *Antigone*? Where would the department of mathematics place a Freshman who had hurried through Arithmetic and Plane Geometry, and offered, instead of a thorough elementary preparation, Differential Equations and Quaternions? Where shall a professor of German place a student who has tortured herself through a part of the work intended for the Sophomore and Junior classes, and has left undone the most important part of her elementary work. Schiller's and Goethe's masterpieces are not suitable textbooks for a two years' preparatory course. In Germany we studied English for three years, four hours a week, before the instructor gave us one of the easier dramas of Shakespeare.

In instruction we must begin at the beginning, proceed slowly and in due order. If it were not such a difficult thing to teach the elements well, and make the students enjoy elementary study, we should have a larger proportion of students in German well prepared in the elements. Two years of study such as is described above is not too much for a language as difficult as the German. If German is meant to be an honest equivalent for the Greek, then three years in it, not two, should be required of the applicants. In that case the requirements should comprise a thorough mastery of the elements, and also the study of certain dramas and prose writings of Schiller, Lessing, and Goethe. But if the time given to preparatory German is but two years, the students should be trained on the practical side, though the literary need not be omitted.

Mr. William C. Collar, of the Roxbury Latin School, thought it would be a natural and excellent outcome of this discussion if we could at this meeting provide for a conference between the teachers of the preparatory schools and the college professors similar to that which has given substantial relief in English. He therefore moved, That it is the sense of this Association that there be held a conference on requirements for admission to college between the professors of the modern languages in the New England colleges and a certain number of teachers of the preparatory schools.

This motion was seconded by President L. Clark Seelye, of Smith College, who remarked that the statements of the catalogue as to the requirements were merely tentative. His college was ready to make concessions in the interest of uniformity.

President Charles W. Eliot, of Harvard University, suggested that this conference might well be called through the Commission of Colleges in New England on Admission Examinations.

The motion was then carried by a hearty and unanimous vote.

Professor Fay, calling Mr. Huling to the chair, spoke of the requirements at Tufts College, alluded to by Mr. Tetlow. They are designed to bring the men on a level with those who have had the language six times a week for a half year. He was not letting out any secret in saying that at Tufts College the awarding of the degree of A. B. to students who have taken modern languages instead of Greek, is imminent. The department of modern language is the only one which now demurs to this, and the reason is that men now come to the B. P. course far too unprepared. He would welcome gladly a uniform requirement equivalent to the Greek. Mr. Tetlow is right; uniformity is possible. But to meet it is, perhaps, scarcely possible, for the majority of students come from schools in which the teaching is not of the best.

Professor Alonzo Williams, of Brown University, drew attention to the fact that the debate thus far had dealt chiefly with the difficulties in the way of uniformity. He hoped something would be said about the methods of securing it. Mr. Tetlow seemed to think that at Brown University particular books were required. This is not the case. The names placed in the catalogue are intended simply to show with more definiteness what is wanted,—and this in consequence of requests from preparatory teachers. There must be a uniformity in the whole modern language work of the student in school and in college. What should be its aim? Who shall determine

that aim? Thus far that duty has rested with the colleges, and perhaps it is best so. For his part he favored the literary aim rather than the practical, because it tended more strongly to make the student an intelligent citizen and a cultivated man.

At the close of this address the discussion came to an end and the meeting adjourned until evening.

FRIDAY EVENING.

At 8 P. M. President Fay called the Association to order and introduced President Charles K. Adams, of Cornell University, whose subject was, "*The Teaching of Pedagogy in Colleges and Universities.*"

After the address the Association and the guests adjourned to a more suitable room, where they devoted the remainder of the evening,—some two hours,—to conversation and the cultivation of better acquaintance. Refreshments were at hand to facilitate the process. It was a most delightful occasion and the committee by whom the preparations had been made, Professor A. H. Buck, Miss Ellen M. Barr, and Mr. M. Grant Daniell, were warmly congratulated upon the success of their arrangements.

SATURDAY MORNING.

The meeting was called to order at 9:35 A. M. by the President. The report of the Committee on Nominations was presented by President Warren, and accepted by the Association. The following officers were chosen for the ensuing year:

President—Mr. William C. Collar.

Vice-Presidents—President Timothy Dwight and Mr. John Tetlow.

Secretary and Treasurer—Mr. Ray Greene Huling.

Executive Committee—(with the preceding) Dr. C. F. P. Bancroft, President Helen A. Shafer, Mr. Edward H. Cutler, Dr. Robert P. Keep, and Professor William Carey Poland.

The Committee to Confer with the Commission of Colleges in New England on Admission Examinations reported through the chairman, Mr. Frank A. Hill, as follows:

CAMBRIDGE, October 13, 1888.

The Committee representing the New England Association of Colleges and Preparatory Schools, present the following report:—

The work of the Committee since their last report, made at the second annual meeting, October 29, 1887, has been confined to two

of the recommendations made by them, in behalf of this Association, in their first communication to the Commission of Colleges in New England.

The first of these recommendations favored the division of the examination in Roman and in Greek history.

At the request of the Commission, a paper was prepared by your Committee stating somewhat fully the reasons for this recommendation. This paper, however, has not yet received the consideration of the Commission, chiefly because their thought and time have been so largely absorbed in the discussion of the admission requirements in English. Presumably, too, in permitting other matters to take precedence of this, they have not been uninfluenced by the fact that nearly all the colleges represented by the Commission make the very division that is recommended.

The argument in favor of the division is as follows:—

1. Latin is usually studied earlier than Greek.
2. The teacher of the Latin language and literature is frequently the teacher of Roman history. Thus the two subjects are more likely to interpret each other, as they ought.
3. Greek coming later, the history of Greece should come later. Here, as in Latin, the literature and the history often fall to the same teacher, for thus they are more easily made mutually helpful.
4. Roman history, being thus separated in fact from Greek history, and having no connection with it except in the general sense that there is a kind of unity in all history, the two subjects naturally falling into different hands and into different years, it would seem that the examination in them ought to be a divided one; that is, there should be two separate examinations.
5. If, further, in any school there are pupils fitting for different colleges any of which permit divided examinations, while the rest do not, there arise difficulties in arranging programmes and classifying pupils,—difficulties that form a part of the general burden imposed upon the secondary schools because of lack of uniformity in admission requirements.
6. If, as a result of the embarrassment mentioned in statement 5, or if, indeed, for any reason suggested in statements 1, 2, 3 and 4, preparation should be creditable in the one history, but not so in the other, it does not seem right that the candidate should be conditioned in both.

7. While it is desirable to avoid multiplicity of examinations, the principle of union should be applied to those subjects only that, in the general practical management of programmes, are found to go naturally and readily together.

8. So far as it is the practice in preparatory schools to unite the history of Rome and that of Greece under one teacher the same year, the argument for the division is, of course, to that extent reduced.

The second recommendation to which the Committee directed attention, related to the admission requirements in English. Here gratifying progress has been made. The history of the successive steps that led up to important and helpful modifications in these admission requirements is fully told in the following communication from the Secretary of the Commission:—

7 COOKE ST., PROVIDENCE, R. I., 9th October, 1888.

To Messrs. F. A. Hill, C. F. P. Bancroft, G. L. Fox, Committee representing the New England Association of Colleges and Preparatory Schools :

DEAR SIR:—A communication from you dated March 1, 1888, was laid before the Commission of Colleges in New England on Admission Examinations at the last annual meeting, on the 6th of April. In this communication you invited the attention of the Commission to the following propositions about the requirements in English for admission to college:

“1. The number of authors recommended for study, by many colleges, should be reduced.

2. The work to be done in connection with each author may, however, be correspondingly increased.

3. There should be fewer changes in authors and subjects from year to year.

4. The proportion of American literature to be read should be somewhat increased.

5. It would relieve the strain of the present system upon candidates and teachers, and promote deliberation and thought in the prescribed reading, if, instead of the customary *ex tempore* composition upon some subject selected from the works recommended, a statement from the teacher should be accepted, certifying that he has satisfied himself by examination that the candidate's reading has been reasonably careful and thorough.

6. If the candidate were required to present one or more of his compositions, prepared under suitable conditions to be certified to by the teacher, the requirement would be favorable to a higher order of work in the schools, and helpful, therefore, to the candidate's preparation.

7. If an entrance examination is deemed advisable, its limitations make it unwise to ask for continuous and well-sustained thought on themes that the candidate can not satisfactorily anticipate. Such an examination should be restricted to exercises that leave the candidate free to attend to the forms of expression,—exercises, for example, like one or more of the following:—

a. The correction of the less obscure faults into which writers are liable to fall.

b. Writing from dictation.

c. The reproduction, in his own language, of matter furnished him by the examiner.

d. Extempore writing on some theme of *assured simplicity*."

The suggestions herein made may be recapitulated briefly as follows:

1. As to the *authors prescribed* by the colleges: you desire a reduction in number, fewer annual changes in authors and subjects, a larger proportion of American literature.

2. As to the *test to be applied* by the colleges: you would establish, in place of the present examination, some system of teachers' certificates which shall affirm that the reading has been done, and shall enable the candidate to present compositions previously prepared.

As an alternative to this, you would modify the present method of examination, restricting it to exercises that concern chiefly the forms of expression; and the specific recommendations under this head are in the direction of plainness and simplicity.

Before your letter was received, the Executive Committee of your Association expressed an opinion that a conference between the professors of English in the colleges and the preparatory teachers was desirable. The Executive Committee of the Commission cordially acceded, and made preparations to hold such a conference on the 6th of April, 1888, in connection with our annual meeting. To this conference you were invited, with the officers and the Executive Committee of your Association. Invitations were also sent to the Presidents and the Professors of English in our associated colleges and to a large number of representative teachers in different parts of

New England. Many of these teachers were members of your Association. The nearer constituency of each college in the Commission was recognized in the invitations. Each member of your Committee was invited personally to speak in this conference, and all persons present were requested to participate.

To the views expressed by you in your written communication and in your remarks at the Conference, the Commission gave earnest heed. It requested the professors of English who were present to hold a meeting to discuss your recommendations, and invited them after their meeting to sit with the Commission, and to report the results of their discussion. In response to this invitation the professors of English made the following recommendations:—

“1. That in our judgment it is advisable to continue the plan of submitting to the preparatory schools a list of books to be read.

2. That the amount of reading in the list of works assigned shall not be materially increased or diminished.

3. That of the amount of reading so assigned, about one-half shall remain unchanged for a period of at least three years.

4. That two-thirds of the amount of reading assigned be taken from literature of the nineteenth century.

5. That in our judgment it is advisable to keep the requirement of the correction of bad English sentences.

6. We heartily approve the recommendation of Principal Bancroft of Andover, that the teachers of Latin and Greek require their pupils to present written translations in simple and idiomatic English.”

The Commission accepted this as expressing an approval of the essential features of the present requirements in English, and at the same time as manifesting a willingness to modify the details to some extent in accordance with your propositions. After considering this report from the professors of English, the Commission recommended to the several faculties of the colleges “that the subjects of the short composition required in the examination in English be always simple;—that the bad English sentences given for correction should not include sentences the meaning of which is obscure;—and that a recommendation to teachers of secondary schools be made in each college catalogue to the effect that the use of simple and idiomatic English in translation be insisted on.”

The Commission also provided for the preparation of a list of prescribed books, and for the general improvement of the requirement in English, in accordance with the ideas set forth by the Commission

and by the professors of English. Accordingly, on the 2d of June, under the auspices of the Commission, a meeting of college teachers of English was held to which each college was invited to send one representative. At this meeting the following list of books for the next four years was adopted:

1889.

Shakespeare's *Julius Cæsar* and *As You Like It*, Gray's *Elegy* written in a Country Churchyard, Scott's *Marmion*, Johnson's *Lives of Swift and Gray*, Thackeray's *English Humorists*, Swift's *Gulliver's Travels*, Miss Austen's *Pride and Prejudice*, Scott's *Rob Roy*.

1890.

Shakespeare's *Julius Cæsar* and *Midsummer Night's Dream*, Coleridge's *Ancient Mariner*, Longfellow's *Evangeline*, Macaulay's *Essay on Lord Clive*, Thackeray's *English Humorists*, Webster's first *Bunker Hill Oration*, Scott's *Quentin Durward*, George Eliot's *Silas Marner*, Hawthorne's *House of the Seven Gables*.

1891.

Shakespeare's *Julius Cæsar* and *Merchant of Venice*, Coleridge's *Ancient Mariner*, Longfellow's *Evangeline*, Macaulay's *Essay on Lord Clive*, Webster's first *Bunker Hill Oration*, Irving's *Alhambra*, Scott's *Old Mortality*, George Eliot's *Silas Marner*, Hawthorne's *House of the Seven Gables*.

1892.

Shakespeare's *Julius Cæsar* and *As You Like It*, Scott's *Marmion*, Longfellow's *Courtship of Miles Standish*, Addison's *Sir Roger de Coverley Papers*, Macaulay's second *Essay on the Earl of Chatham*, Webster's first *Bunker Hill Oration*, Irving's *Alhambra*, Scott's *Talisman*, George Eliot's *Scenes from Clerical Life*, Hawthorne's *House of the Seven Gables*.

At the same meeting, in response to the request of the Commission, the whole subject of the requirement in English was discussed and the following suggestions were unanimously approved:

“1. That it be understood hereafter that the subjects for the compositions prescribed are to be drawn from two or three of the books named in the list for the year.

2. That it is recommended that two hours be allowed for the entire examination in English.

3. That it is desirable that English study in preparatory schools be continuous for at least three years; and that, accordingly, Eng-

lish be reserved for the candidate's final examination for admission to college."

The lists for four years given above are to be printed in the next annual catalogues of the colleges. They have been published already in the September (1888) number of *THE ACADEMY*, and in the *Journal of Education* of the date of September 13, 1888. The lists for the years after 1892 will be announced in due time. The annual changes will be made as gradually as in the lists given for 1890 to 1892.

In conclusion, while the commission, acting in close correspondence and conference with you and with the professors of English, has not found itself ready to recommend radical changes in the general scheme of requirements in English, and in the method of examination, it has mediated successfully in securing modifications which, we trust, will prove satisfactory under the existing circumstances. The problem is not altogether simple. Probably the time has not come for its final solution.

With renewed assurances of the complete sympathy felt by the Commission for your association and for all preparatory teachers, I am, dear sirs, with personal esteem,

Most obediently yours,

WILLIAM CAREY POLAND,

Secretary of the Commission.

If the committee have presented nothing to the Commission in relation to the admission requirements in modern languages, it is not because they are unaware of the need of definiteness and unity in such requirements, but rather because they wish to assure themselves of the particular propositions it is desirable to submit to the commission. The crystallization of opinion that is now going on in this matter is therefore noted with interest.

In conclusion it is pleasant to acknowledge the earnest and courteous attention the Commission have given to the communications of your committee as well as the pains they have taken, through their efficient Secretary, to furnish your Committee with exhaustive reports of their action.

Respectfully submitted,

FRANK A. HILL,

CECIL F. P. BANCROFT,

GEORGE L. FOX.

The report was accepted and the committee continued without change. Its membership is as follows: Mr. Frank A. Hill, Dr. C. F. P. Bancroft, and Mr. George L. Fox.

On motion of President Warren, the vote of yesterday with reference to a conference as to requisitions in the modern languages was referred to the committee just named.

The question of amending the Constitution with respect to the month of the annual meeting was referred to the Executive Committee.

The following persons were elected to membership in the Association:

Thomas B. Lindsay, Professor in Boston University, Boston; Byron Groce, Master in Public Latin School, Boston; John H. Wright, Professor in Harvard University, Cambridge; Frederick D. Allen, Professor in Harvard University, Cambridge; Thomas D. Goodell, Teacher in High School, Hartford; J. E. Clarke, Principal of High School, Chelsea; D. W. Abercrombie, Principal of Worcester Academy, Worcester.

At the close of the business meeting, the President introduced Professor Truman H. Safford, of Williams College, who gave an address in answer to the question, "*Why Does the Number of Students in American Colleges Fail to Keep Pace with the Population?*"

The discussion that followed was animated and very instructive.

President Charles W. Eliot, of Harvard University, mentioned causes that seemed to him now operative. The marked tendency of our foreign population to establish distinct schools is one cause of the decrease in attendance on the colleges. This separation will occasion an ultimate loss of influence, and will be followed by a reaction in due time. There is a general tendency of sectarian schools to become unsectarian. Another cause is the great improvement in the college work. We hardly understand how elementary the instruction was in the colleges of thirty years ago. Another cause is, perhaps, the fact that secondary schools are so good as to satisfy the parents of a large number without further education of their sons. Yet the opportunity offered to German pupils in secondary schools is far better than to American boys, for the Germans spend more upon their schools than we do. American normal schools may have improved the grammar and primary schools, but they have been an injury to higher education. The number of hours of recitation has

been diminished at Harvard within the past ten years, because much more original research and laboratory work is required than formerly.

Dr. Robert P. Keep thought that the hours of contact between the teacher and the pupil might well be increased in the secondary schools, in order that the student may be better taught how to study. Bright German boys study little outside the class room, but American boys waste much time during study hours.

Prof. A. H. Buck, of Boston University, raised the question: Why do not the college men more readily find employment?

President Eliot replied that the colleges were often to blame for graduating men of very inferior ability. The relative number of Harvard graduates who enter business is increasing each year.

President Elmer H. Capen, of Tufts College, was of the opinion that college aids are now so easily obtained that inferior men find they can get more money in four years by going to college than in any other way.

President George Williamson Smith, of Trinity College, inquired concerning the number of American students in European schools and universities, and also as to the ratio of college bred men to the population here and abroad.

Professor Safford replied that the number of American students in the German secondary schools is probably not large. There are no statistics available on this point.

President William F. Warren, of Boston University, believed that the decrease in college attendance has been largely influenced by foreign immigration, and by the emigration of promising young men from New England to the West. Probably both these factors have reached their highest point. The higher education of girls is likely to have a potent influence for good. Very often it is the mother who determines the educational future of the boy. The mothers of the next generation will have a keener appreciation of the value of education than the mothers of the past.

Mr. William F. Bradbury, of the Cambridge Latin School, suggested another cause for the decrease. The High schools now give a preparation that is accepted at the professional schools. Many cannot afford to go to college, but pass at once to the law or medicine. Much has been said about the studies of the German boy; but when does the German boy play? Does he have any fun? Is he a boy at all? After all, do the German schools make better men than the American?

Mr. William C. Collar thought that there was something discouraging in the statement that the very excellence of the preparatory schools was one cause of the decrease in numbers at college. In view of the references to the earlier age at which foreign boys begin serious studies, he would mention that within the past seven or eight years the average age of entering his school had been reduced nearly a year.

With this the discussion ended and the meeting came to a close by adjournment.

RAY GREENE HULING, *Secretary*.

NOTES.

Progress in methods of modern language teaching, and improvement in the qualifications of modern language teachers are indicated by the growing demand for simple texts without notes. Mr. Charles H. Kilborn, 5 Somerset St., Boston, sends us specimens of two such texts,—Hauff's *Der Zwerg Nase*, and a chapter, *Ali Baba*, from Gustav Weil's translation of the Arabian Nights. These well chosen bits of German are made very cheap and very legible, thus meeting all the requirements of good texts for school use. The bulky *reader* with its heterogeneous selections from all styles and all periods, with its mass of undesired erudition and its skeleton vocabularies, should hasten to become a thing of the past.

Three new books of importance to the student and the teacher of English we briefly mention here, and may notice more fully hereafter.

The "*Concise Dictionary of Middle English*" of Messrs Mayhew and Skeat (The Clarendon Press) is a collection under one alphabet of all the words and forms contained in the glossaries of eleven publications in the Clarendon Press series of Middle English texts. Thus the "*Concise Dictionary*" makes no pretension to completeness. It serves, however, as an adequate lexicon for reading the commoner texts, and will be a sufficient help to nine-tenths of the students of Middle English, at least during their apprenticeship in this period of our literature. The price of Stratmann's Dictionary, hitherto indispensable to students of early English, has been doubled by the Ger-

man publishers. Hence it is pleasant to be informed, in a foot-note in the "Concise Dictionary," that a new and thoroughly revised edition of Stratmann is being prepared by Mr. Henry Bradley for publication by the Clarendon Press.

Mr. Henry Sweet's "*History of English Sounds*" appears with the imprint of the Clarendon Press, so much increased in bulk and so much modified in its conclusions that it is put forth without any assumption on the title page of being a second edition. It is a beautiful book in its present shape, and its usefulness and interest are enhanced by the word-lists that occupy 120 of its 400 pages. "Its object," says the author, "is the same as before,—to sketch the development and history of English sounds from the very beginnings of articulate speech down to the present day, with such discussion of the general principles of sound-formation, sound-change, sound-representation and the development of dialects and languages as seemed necessary." The book should not be thought of for a moment as a book for a beginner in English phonology. Perhaps this science yet awaits its primer or its popular introduction.

The third volume of Prof. Henry Morley's "English Writers" (Cassell & Co.) covers the period from the Conquest to Chaucer. The fourth volume, which will present Chaucer and Wycliffe, is promised for December. The volume before us is, like all of Prof. Morley's writing, readable, nor yet, apparently, lacking in thoroughness and breadth of view. Among the more interesting topics of its chapters appear *Layamon*, *The Ormulum* and *the Ancren Riwele*, *The Italian Revival*. If the period which the book treats appears somewhat lacking in general interest, it should be remembered that it is introductory to the age of Chaucer and Wycliffe. Perhaps, if the volume is undertaken for the sake of its immediate successor, it will be found to have awakened an interest even in the less brilliant period which it adopts as its own theme.

BOOKS RECEIVED.

The Old Northwest, with a view of the thirteen colonies as constituted by the Royal Charters. By B. A. Hinsdale, Ph. D., Professor of the Science and Art of Teaching, University of Michigan. New York: Townsend MacCoun. 1888.

Whatever opinion one may form as to the merits of this book in other directions it certainly has the merit of being readable. It can scarcely be called a history. It does not quite make the impression of being an organic whole. It is rather a series of interesting papers on an interesting subject. Dr. Hinsdale has quoted largely all through the book from the best known of our American writers on the subject. It is extremely valuable for the clearness with which the author brings out the important fact that the whole subsequent character and history of the North-West is the natural result and outgrowth of certain physical characteristics which marked out and determined the lines of exploration and settlement. It is a book which every teacher will want to read, and which no library can do without.

Im Zwielficht. First readings in German Prose, containing selections from Rudolf Baumbach's "*Märchen und Erzählungen*." With oral exercises in German, notes and vocabulary, by Dr. Wilhelm Bernhardt. Sec. Ed. Boston: Carl Schoenhof.

We cannot conceive a more delightful German reading book than this, if not for beginners in their very first stage, as the title seems to suggest, yet for pupils who have conquered their first difficulties, and can begin to feel the literary charm of their reading matter. It was a good idea to make one entire little book from the writings of a single master of idiomatic German, and it was an especially happy thought to fill a reading-book for young learners with choice *Märchen*. Nothing else so essentially German, in its very pith and marrow, as the *Märchen*, could be found. The style of Baumbach suits the light and pleasing mystery of the tales in a most charming manner. It is a style good enough for a child to dwell upon and become familiar with, and good enough for an adult to relish.

Dr. Bernhardt has furnished the book abundantly with pedagogic material to suit such as need or desire it. In some instances his notes become really important and give such explanations as only an intelligent German, and not any and every possessor of the usual lexical helps, could supply.

We cannot too highly praise the press work of Mr. Heinemann, though we could wish that he and Mr. Schönhof had agreed upon a paper much less highly glazed.

A Companion to School Classics. By James Gow, M. A., Head master of the High School, Nottingham; late fellow of Trinity College, Cambridge. London: Macmillan and Co. 1888.

This book is not merely a fresh specimen of a well-known species. It is novel as well as new. It is not to be compared with this or that familiar book professing to serve the same ends. It offers to serve new ends.

Yet, unless we greatly mistake, every classical teacher who once turns these pages will recognize that the book supplies a deficiency in the usual outfit for classical teaching. Short of the great classical dictionaries, the bulky histories, or the special treatises on the several departments of archæology, it has not hitherto, to our knowledge, been possible to have access to the information which Mr. Gow concentrates in his less than four hundred pages of attractive, open print. We recollect Baird's *Classical Manual* and have seen it fall into disuse. Baird's little book was barely an adumbration of Mr. Gow's. The field was unoccupied, and that it was so was discreditable to classical teaching in England and America.

The author tells us in his preface that the book grew out of his endeavors to satisfy his own needs as a teacher, and that it consists largely of notes dictated to his classes. He intends it to be an auxiliary to the notes to any Greek or Latin Text. These notes of necessity presuppose certain knowledge in the pupil, and are unintelligible unless this knowledge exists. But it usually does not exist in the learner, and even the teacher will rarely possess it unless he is more of a specialist than secondary teachers generally are. This knowledge refers to subjects of general Greek and Latin archæology, and embraces a great variety of information on matters that come up every day in school readings of classic texts.

Under the heading "classical texts," seventy-seven pages are devoted to minor topics, as follows:—The Greek Alphabet, The Latin Alphabet, Books and their publication, History of classical Manuscripts, Modern libraries of classical MSS., Apparatus critici, Textual Criticism, Famous Scholars, Dialects and Pronunciation. Under *Greece* the main heads are;—Greek Chronology, Greek metrology, History of Athenian government, Population of Attica, Athenian officials, Athenian deliberative assemblies, Athenian army and fleet, Athenian legal procedure, Athenian finance, Sparta, Colonies and cleruchies. Under *Rome* the main heads are;—Roman chronology, Roman Metrology, History of Roman government, Rome under the

Kings, The Republic of Rome, The imperial government, The Roman army, The Roman navy, Roman law, Roman finance. To the *Drama* are devoted thirty-three pages; to *Philosophy*, fifty seven.

We have named only the chief topics. Of sections, each bearing its own title there are 254. The Greek and Latin indices and the index of subjects occupy fifty pages.

It remains for us to say that the book is full enough to read with interest, and brief enough to read in a busy pupil's or teacher's time. It seems to us to be thoroughly well done. There are handsome cuts for illustration, of which we would specify, as sure to prove novel and interesting in school, the frontispiece,—“Coins and Symbols,” “Ancient Alphabets,” and “Facsimiles of MSS.”

Every classical teacher should seriously consider whether he can afford to leave this book out of his list of helps. He is surely not likely to make good its absence by any research he can carry on elsewhere. Whether it will be well to put it into the hands of pupils each teacher can decide for himself. But we should say that, next to grammar, text, and lexicon, it should commend itself, even for pupils' use, as the most indispensable “companion.”

The Study of English Literature. Three Essays. I. *The Study of Literature*, by John Morley. II. *Hints on the Study of English Literature*, by Henry I. Nicoll. III. *The Study of English Literature*, by Leslie Stephen. Boston: Willard Small, 1888.

It was certainly well to bring together within the compass of one small volume these three interesting chapters on the study of English Literature. They are precisely adapted to inform, to guide and to stimulate that large class of students and teachers now concerning themselves with the elements of literary work. The three writers are well known for their competence to speak on their common topic, and they speak here with their usual fluency and directness and in their wonted pleasing style. The three essays do not constitute a unity in the rhetorical sense, and it was perhaps straining matters a little, from a strictly artistic point of view, to bind them in the same covers. Yet they make a general impression of unity, and together convey wholesome instruction and give abundant suggestion.

The effect of a study of these essays will be to enlarge the English-teacher's conception of his functions and to exalt his ideal of his own attainments. Competency to teach English literature will mean vastly more even to many an old teacher of the subject when he has given them a careful reading. They contain no fine writing, or

"padding," but abound in concrete illustrations. Thus they are both useful and interesting, and have the two grand titles to the notice of the earnest teacher.

We should like to quote from them more fully. In view of recent assurances we have received that the only admission to English Literature is through the classics, we quote the following, from the essay of Leslie Stephen:—

"When I am told that a knowledge of classical literature is not only most desirable, but even essential to a full appreciation of the modern literatures, I cannot but think that there is a gap in the logic. How do you learn to appreciate either? I know a lady of remarkable beauty; I am told and I believe that she inherits the beauty from her grandmother. Do you imagine that I enjoy the sight of her beauty the less because I had not the happiness to know her grandmother? The knowledge of the fact is interesting to me as an humble disciple of Mr. Darwin; it is a case of "heredity," and therefore relevant to a scientific inquiry. Similarly, if I wish to explain how English literature comes to have certain peculiarities, I must know the sources from which it is derived. But after all there is a vast difference between what is called knowing a thing's history and really knowing the thing itself, between really having an ear for music and knowing how, for example, modern harmony has grown out of strumming on some prehistoric barbarous tomtom. No amount of such knowledge will give you the ear; nor will any knowledge of the relations between English and classical literature of itself endow you with the true faculty for perceiving the beauties of either. We cannot honestly deny the fact that many of our greatest writers owed little or nothing to any classical training, even when they possessed it. It is enough to run over the bare names of Shakespeare and Bunyan and Defoe and Burns and Dickens, to say nothing of many less distinguished. Cobbett wrote incomparably better English than Dr. Parr, and Mr. Bright has a style very superior to—I will not give a name. Criticism requires a wider knowledge though less genius than original authorship; but I cannot discover that our finest critic of some of the most important English literature—I mean Charles Lamb—owed anything to his scanty scholarship."

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*SCIENCE IN SECONDARY SCHOOLS.**

GEORGE E. ZARTMAN, WATERLOO, N. Y.

This is not intended to be a record of "how I was educated" in science in secondary schools, nor a review of "what books have helped me in science," but it is intended to be a description of "how I would teach science in secondary schools." The plan presented is not mere deductive theorizing, but is rather the inductive generalizing of results, which have already been obtained in such work by making use of whatever ideas were at hand that suited my purpose, whether those ideas had their origin in the Ego or in the Non-Ego.

As but few of the colleges of this state require any knowledge of science for admission to the regular courses that require languages, which are the courses pursued by perhaps a majority of those who enter college, science teaching in secondary schools is very largely for the benefit of students whose school education ends with their graduation from such schools.

The average age of the graduates of these schools is probably seventeen or eighteen years; and their study of science is confined chiefly to the last two years of their course. Hence the problem for discussion is how to teach science with the greatest profit to students

* This paper was submitted in the competition for THE ACADEMY prize last March, and received honorable mention from the judges together with the suggestion that it be published.

of from fifteen to eighteen years of age, who either are completing their school education in the secondary schools, or are laying the foundation of scientific studies on which to build a college course in science.

The sciences which are sometimes taught in these schools include physiology, physical geography, botany, zoology, physics, chemistry, astronomy, and geology. As physiology is now required to be taught in all the grades, and as physical geography is quite closely connected with descriptive geography and belongs to the intermediate department rather than to the high school, they will not be considered in this discussion farther than to insist that they should, as far as possible, be taught in the same scientific way that is attempted to be hereinafter outlined for other sciences.

The value of science teaching depends upon the mode of teaching. To teach science simply from the text-book, the same as mathematics, history, and literature are usually taught, will produce only the same results as are chiefly sought in teaching these latter branches, that is, mental discipline and useful information. But while useful information and mental discipline are not to be ignored in science teaching, yet they are not the special objects sought by such studies. To train the senses, the sight, the hearing, the taste, the smell, the touch, or rather to train the mind to interpret correctly the meanings to be derived from these various physical sensations, should be the chief aim of science teaching.

There is no need of argument to prove that average students can be put through text-books of these sciences, and pass a creditable examination in three of them every year. But they will have gained simply memorized book knowledge, and will be as ignorant as before of the use of their senses. Ask students, who have been accustomed to learn and recite their other lessons by the page, what is meant by specific gravity and how it is determined, and they will repeat with precise accuracy the words of the book. But let the teacher place upon a table all the necessary apparatus, and call upon them to illustrate with it the meaning of the definitions they have given; or let the teacher slowly and carefully perform the experiment, announcing only the results at the end of each step without explanation, and then ask them to describe what they have seen, and assign the reason for each operation and draw the proper conclusion, and he will begin to understand that students can repeat the statements of the text-book verbatim et literatim, and yet be without any

accurate conception of the ideas and principles contained in those words. A teacher can hear a class recite an average of six or eight pages of a text-book in science every day; but he may consider himself fortunate if he succeeds in thoroughly and practically teaching them half that amount a day. To teach students to think, to use their senses, and how to manipulate apparatus requires time, a great deal of time compared with that required for other work; and the question of time is the first one to be settled in order to have successful science teaching.

If only the time of one study for two years can be given to science, there should be no attempt to teach more than three of the six sciences mentioned above. One science properly taught is more valuable to the student than a smattering of two. Without disparaging the value of the study of zoology, astronomy, and geology, it is nevertheless evident that they do not afford so good opportunities for training the senses as botany, physics, and chemistry furnish. The fundamental principles of astronomy, zoology, and geology can be very appropriately taught in connection with descriptive and physical geography. And if the student wishes to pursue any studies by himself after leaving school, he can study these three without expensive apparatus more easily than the others. If he has been taught correct methods of study in a few sciences, he will be well prepared to undertake the study of others without a teacher; and if he is preparing for college he will need botany, physics, or chemistry for entrance, if he needs any science.

To divide two years between botany, physics, and chemistry will give two-thirds of a year to each, and in that time some real science teaching can be accomplished. If more than two years can be given to science, additional time may be used with advantage on these three, or one or more of the others may be taught; but two-thirds of a school year is the least time in which any good teaching in any science can be done.

The order in which these studies should be placed will depend somewhat upon the arrangement of the other studies in the course. Some knowledge of algebra is necessary for successful work in chemistry and physics, and some knowledge of geometry is also essential in physics; while botany should be taught in the spring and fall, so that all the flowers both early and late may be practically studied. The mutual dependencies of physics and chemistry are about equal; yet a knowledge of the principles of chemistry will doubtless aid in

the study of physics more than a knowledge of the principles of physics will aid in the study of chemistry. And as there is better opportunity to teach each student how to use apparatus in chemistry than in physics, it would seem to be the better plan to teach chemistry before physics. Therefore let chemistry or physics occupy the first two-thirds of the first year, botany the last third of the first year and the first third of the second year, and physics or chemistry the last two-thirds of the second year.

Having decided what sciences to teach, and how much time shall be given to each, the next question is where to teach. There should certainly be a laboratory, a room specially fitted up for science teaching, though it can of course be used for other classes, when not needed for classes in science. This room should not be in the basement where it is damp. It should, if possible, have windows on the south, though windows on the east or the west will do; but when studying light, the recitation must be in the forenoon, if there are only east windows; and in the afternoon, if there are only west windows. For many experiments in light, as also in electricity, and for some in chemistry, a darkened room is absolutely necessary; and it is likewise desirable that no great amount of time shall be consumed in darkening the room, whenever it is required. To accomplish this, light frames of wood, an inch thick and two inches wide with a brace across the center, should be made of such size that when covered with cloth they will just fit the window frames. Any kind of cloth may be used to cover them; muslin is good enough; and then they should be painted on both sides with a thick paint made of lamp black and oil with sufficient Japan to dry well. In the bottom of the dark screen, which belongs to the window having the best sunlight, should be fitted a board, a foot wide and as long as the screen is wide. Before this board is fastened into the screen, a circular opening should be cut in the center of it. The size of this opening will depend upon the size of the heliostat to be used, perhaps eight inches in diameter will be large enough. When the board has been securely fastened in the screen, the cloth should be cut, folded under, and tacked around the edge of the opening in the board. A half inch board, a foot wide and fifteen inches long with a screw in each corner, will cover this opening when only a darkened room is wanted. There should be another half inch board of the same size with an opening in the center just the size of the frame of the heliostat. When the heliostat has been firmly fastened to this

board, both together may be screwed to the screen in place of the covering board, and thus a darkened room with heliostat be obtained in a very short time. With these simple arrangements, a few minutes will suffice to arrange the room for any experiments requiring either simply a darkened room, or a darkened room with heliostat.

The next requirement will be a work table for the students. For the student must have a place to work, before he can be taught how to work. The length of this table must depend upon the size of the room and the needs of the school. The table should be about forty inches high and not less than three feet wide. On the center of the table should be placed a row of double desks. These may be two feet long, two feet high, and a foot wide, with a partition lengthwise through the center, and two shelves on each side, leaving nine inches from the table to the lower shelf, seven inches between the shelves, and five inches between the upper shelf and the top of the desk. These desks should be placed twelve or fifteen inches apart, and securely fastened to the table; and drawers should be made in the table on each side directly in front of each desk. The separate desks have several advantages over the continuous desk through the center of the table, which has been so extensively used: First. If it is necessary that the table be placed in front of the windows, as it sometimes is, the light will not be so completely cut off from the rest of the room; Second. When the teacher wishes to give any instruction to the entire class while at work, he can stand back a short distance from the center of the table, and be in plain sight of all the students on both sides of the table, those on the side nearer him standing in front of their desks, and those on the farther side standing at the side of their desks and looking over the table, which they could not do with a continuous desk; Third. As some materials are needed only a few times, or even only once, if they are placed between two desks, they will be in easy reach of four students, thus saving the expense of many bottles without detriment to the work; Fourth. Wash basins placed between the desks will accommodate the students on both sides.

If the school house is furnished with water, or has a reservoir in an upper story, faucets and wash basins should be on the table. If these can not be had, there should at least be a pump connecting with a cistern below, and a good sink. If there is gas in the building, a Bunsen burner should be at each desk. If gas can not be obtained, a four ounce alcohol lamp for each student, and a Kellogg

gasoline lamp for the teacher's table will meet the demands very well. To make the table complete, each desk should have a ventilating hood for such experiments as the preparation of chlorine, hydrofluoric acid, and hydrogen sulphide. Yet with care these can be performed without allowing any large quantities of the gases to escape into the room, without the use of hoods. There should, however, be a large ventilating chamber connecting with a chimney with a good draft, for the general experiments of this kind.

Apparatus cases with glass doors, made as nearly air tight as possible so as to exclude dust and gases, a dark case for chemicals, a small blackboard, a teacher's desk and table, and recitation benches will make up the chief furnishings of the room.

Before deciding what apparatus shall be obtained, it will be well to determine what text-book shall be used; for it is assumed that in secondary schools a good text-book thoroughly followed is better than a poor text-book supplemented with notes and lectures, or lectures alone. Of course the teacher should make himself familiar with all the best text-books for secondary schools as well as with some larger and more exhaustive treatises. It will be found that in condensing his work each author has omitted some parts, which others have thought essential; and some of those omitted points will be just the ones that some bright student will want to know. All these the teacher should be ready to explain and illustrate; and he should also be able to add some interesting fact to every principle discussed by the author, or show some practical application of it.

For illustration, the common text-books on physics go but little farther, in their discussion of sound in its relation to music, than to give the fractions denoting the relative number of vibrations corresponding to the different notes of the major scale. It would be both interesting and profitable to spend an entire recitation, if necessary, in explaining on the blackboard how those fractions are obtained, what is the meaning of interval and tempering, why there is no key on the key-board of instruments for a B sharp and C flat, or for E sharp and F flat, and why vocalists, who did not learn to sing with instrumental accompaniment, do not sing the same tone for sharps and flats. Surely such knowledge ought to be at least as valuable as an understanding of the operation of a Turbine water wheel, or of the construction of the images of a concave mirror.

Teachers of chemistry in secondary schools ought not to make the error, that has been made in some higher institutions, of requir-

ing students to do a great amount of qualitative analysis of unknown compounds, without having first given them a good foundation knowledge of the elements and their properties. The work of the secondary schools must be general descriptive chemistry with abundant experiments to illustrate it, and a small amount of qualitative work. No great amount of original work ought to be expected of students in such schools. Therefore the selection of good text-books in both physics and chemistry, with the experiments placed right along in their regular connection through the text, and not collected together in an appendix, is recommended.

Very much of the apparatus necessary for physics can be adapted for use in chemistry and vice versa. Although for many experiments separate sets of apparatus can not be provided for each student on account of the expense, yet if there is only one set for a given experiment, the students should have access to it, so that they may thoroughly examine it, and should also be required to assist in its use and then to explain it.

When the text-books have been selected, the teacher should go carefully through them page by page, deciding which experiments should be performed by the students individually, and which should be general experiments, and making a list of the proper apparatus and of the kind and quantity of all supplies necessary to illustrate every principle, and to perform every experiment, or at least every important one.

Each of the students' desks should be furnished with about a dozen four ounce tincture bottles for the acids, distilled water, alcohol, and most frequently used solutions, also about a half dozen two ounce salt mouth bottles for the most common salts used, a half dozen four and six inch test-tubes, an eight inch side neck test-tube with rubber stopper, thistle-tube, delivery tube and rubber connection, a six inch ignition tube with rubber stopper, a test-tube brush, a test-tube clamp, a test-tube rack, a retort stand with two rings, a piece of wire gauze or asbestos paper, a stirring rod, a pipette and soft glass tubing, a two ounce evaporating dish, two small beakers, a small flask, a wash bottle, a funnel and filter papers, a blow-pipe and charcoal, a small crockery or glass dish about six inches in diameter and two inches deep for a pneumatic trough, and a strip of sheet lead a foot long, one end to be placed under the dish and the other end bent around over the dish and standing vertical, to

which in collecting gases the inverted test-tube may be fastened by a rubber band.

With this apparatus each student can perform for himself about two thirds of the experiments given in any text-book on chemistry. The remaining experiments must be performed on the teacher's table.

For the preparation of all gases except oxygen, the eight inch side neck test-tube will be sufficient. Oxygen can be prepared in the ignition tubes. In these the students may learn how to prepare oxygen; but there should be no attempt to manufacture large quantities in glass vessels, for the glass will frequently be broken. It is far preferable to prepare it in a copper flask. After the flow of oxygen has ceased, the hard cake of residue in the tube or flask can be easily dissolved with water.

There should be two large pneumatic troughs or gas holders, one to be kept supplied with hydrogen, and the other with oxygen. On the teacher's table and in the cases should be all the apparatus for the larger experiments, also the stock chemicals and the materials, which will be needed only a few times, together with the general supplies. All chemicals should be kept labeled with both name and symbol. If distilled water can be procured in no cheaper way, sufficient for a small class can easily be obtained with a large stoppered retort and a Liebig condenser.

With the apparatus on their desks the students can also perform many of the experiments in physics. If the laboratory is used as a work and study room, as it should be used, and not simply during the recitation hour, a large number of students may during the day perform an experiment with only one piece of apparatus.

The limits of this paper will not permit a description of all the work to be done and the manner of accomplishing it. Nor indeed is such description necessary in view of the plain and minute directions given in the text-books for performing every experiment. But whether the experimenting is done by the students, or by the teacher, or the subject is one that can not be illustrated by actual experiment, the teacher should be certain before leaving it that the student understands its meaning and can clearly express it in his own language. If the book says that sheap-shears are an illustration of a lever of the third class, it may be well to find out how many of them ever saw such shears or know how they look. If the subject is electrotyping, let the teacher go to a printing office and get some worn out type

and a disused electrotype plate; and he need not be surprised if he finds that some of his most intelligent students never before saw common type, and had no idea of the meaning of the statement "Electrotyped by A. B.," which is to be found on the back of the title leaf of all their text-books.

The observing teacher can find almost any number of illustrations of the application of the principles of physics and chemistry to the common affairs of every day life; and he should not fail to call the attention of the students to as many of them as possible, always asking them first whether they can give any such illustrations.

Perhaps teachers will say "The method above set forth is all very good, but we have no laboratory, and we have asked the board a number of times for money to purchase apparatus, and they always say they have none to give us; and we can't buy it out of our own pockets, so what can we do?" The first error that is usually made is that teachers wait until the school budget has been made up, and the apportionments voted by the taxpayers, before they ask for money for apparatus, and of course they do not get any. School boards are, or at least ought to be, composed of good business men. And when a good business man knows at the beginning of the year that he has certain definite sums to be expended for specific purposes, he will not be likely to use such moneys for other purposes, and then at the end of the year be compelled to report to his fellow citizens that they are in debt on bills for which ample appropriations had been made at the beginning of the year.

To get money for apparatus the teacher should go before the board before the budget is made up, and ask that an appropriation be made for apparatus. It might be well to suggest to them that to expect a teacher to teach science without the proper apparatus was just as foolish as it would be to require him to teach mathematics without blackboard or crayon, and even more so, for the want of blackboard and crayon could be supplied to a great degree by the use of slate, paper, and pencils, but nothing could take the place of the apparatus. As teachers are not expected to bring in some rough board and use it for a blackboard, neither ought they to be compelled to hunt up old trash for apparatus or to go without it. The addition of a few hundred dollars at the farthest to the appropriation would not increase the tax for the average taxpayer more than a shilling or two. If the subject is thus practically presented to them before the esti-

mates are closed, the average board will readily grant the request, and the taxpayers will just as readily vote the appropriation.

Then having once equipped the school with apparatus and supplies, the teacher should see to it that every year a small item is put into the estimates, for the purpose of purchasing chemicals, replacing apparatus which has been broken, and adding some new pieces.

If the school has no apparatus whatever, not more than five hundred dollars will be necessary to fit up a laboratory and furnish the apparatus for teaching physics and chemistry as above indicated. As most schools have some apparatus, and as some money can be obtained from the funds which the Regents distribute every year for the encouragement of schools in purchasing libraries and apparatus, it would seem that an appropriation of two or three hundred dollars would furnish the money, which if properly expended would enable any school to teach science in a scientific way. It is not necessary that all apparatus should be of the most expensive kind. But it should be good and substantial and well adapted to the purpose for which it is intended. Glass models of force and lift-pumps are a very great assistance to students in comprehending the principles on which such pumps are constructed and their mode of operating. In many chemicals, the difference between the price of the common and the price of the chemically pure is so small that it is better to pay a little more, and avoid the risk of spoiling an experiment by using an impure substance. In some cases, however, the common is practically just as good as the chemically pure and much cheaper.

If compelled to do so by lack of funds the teacher can also manufacture a great many articles that will work very successfully. Especially is this true in chemistry, where with a general supply of flasks, soft glass tubing, rubber stoppers and tubing, corks, cork borer, and sealing wax or paraffine wax, which every laboratory should have, the teacher can construct at half the expense apparatus which will answer all practical purposes as well as that which is specially designed for each experiment. A good test-tube rack can be easily made out of a piece of pine a foot long, four inches wide, and two inches thick. In the top along one side bore a row of holes, one large enough for the eight inch test-tube and the others large enough for the common tubes. Having first beveled the other edges, bore a row of small holes and insert short wooden rods for drying pins. A Daniell's Battery that will do very successful electroplating can be made of a large tumbler, or of a bottle with the neck cut off, a piece

of amalgamated sheet zinc, a piece of sheet copper, and an unglazed earthenware cup.

Such apparatus can be constructed and used in place of the regular articles made by the manufacturers of apparatus. But it frequently requires a great deal of time that the teacher can ill afford to spend. His work ought to be to adapt and use apparatus and not to manufacture it.

There is one other prime necessity for successful science teaching, and that is a teacher. Some characteristics of the ideal science teacher have already been alluded to. In many schools the blame for the want of proper accommodations and appliances for teaching science in a practical way ought not to be laid upon the boards of education, but upon the teachers. School boards do not often contain men who can perceive and appreciate the need of apparatus and provide for it, without instruction from the teachers. And indeed some excuse may also be made for the teachers, because their own education in such subjects was so greatly neglected that whatever they have been able to accomplish has been chiefly the result of their own application and perseverance, and not the result of the training for such work received when they were students in school. But whatever the past has been, the schools of to-day must teach science practically, and the teacher must show such enthusiasm in his work, and present his requests to the board in such a timely and forcible way, that they will make the necessary appropriations; and then he will need to show good judgment in making purchases, so that a given amount of money may be made to go as far as possible. For this as well as for his regular work of teaching, he will derive great assistance from a careful study of the illustrated catalogues published by the dealers in apparatus.

The successful teacher must have the "genius of hard work," and the "knack of doing things," or at least the ability to see how they ought to be done, and can be done, so that he may direct others. Above all, whether he be young or old in years, he must not have forgotten his own delight over his first successful trial of any experiment. In science teaching more perhaps than in any other, is the expenditure of time and strength on the part of the teacher apparently out of all proportion to the results obtained. Frequently the teacher must spend an hour or more in simply arranging the apparatus for use, either for an experiment which the students will perform, or for one that he will perform for them; and then when the class

is assembled and all is ready, the experiment will require but a minute. So that he is often tempted to think that he has wasted his time, and he might just as well have simply told the students what "would result if they should do thus and so." But when the time comes that the teacher yields to such a temptation, no matter what his learning may be, he becomes so far a failure as a science teacher. If the great Faraday could say that he could never thoroughly understand an experiment, until he had not only seen it performed by others, but had also performed it himself, surely students just beginning the study of science ought not to be expected to understand much without actual experimenting by themselves; and that means a great deal of work for the teacher.

But if the teacher will supply himself with proper time, laboratory, text-book, and apparatus as indicated in this paper, and then diligently apply himself to his studies and work, he can not fail of success. Yet he should not expect to accomplish all of this in one year. It will require the planning and labor of one year to make all the preliminary arrangements, then a year to test his plans, to make changes, and to supply deficiencies; and about the third year he will be in condition to teach with pleasure to himself and profit to his students.

*NOTES ON TECHNICAL EDUCATION.**

BY DR. ROBERT H. THURSTON.

III.—ORGANIZING A SYSTEM OF TECHNICAL EDUCATION.

In the study of the needs and the methods of providing a satisfactorily efficient system of technical education, in the promotion of the industrial interests of the State of New Jersey, to which reference was made in the last of these articles for *THE ACADEMY*,† the writer concluded that the best policy and the best practice might probably be illustrated in a method of organization by state legislation which should be based upon the following general plan:—

* Abstracts from unpublished reports by Dr. Thurston upon the technical work of Cornell University, &c.

† Report to N. J. State Commission.

(1.) The organization of primary education with reference to the ultimate needs of the classes of the population for whom the primary schools are mainly required, and especially with a view to making their pupils ready for the work which must come to them in after years.

This means the communication of a knowledge of essential elements of primary education in such a manner as shall facilitate their later use of that knowledge in applications to the purposes of life as it comes to them. Fortunately the elements of primary education are substantially the same for all, rich and poor, for those to be given the blessings of higher education and those to receive the discipline of a life of poverty and long struggling for the necessities of the most humble existence.

(2.) The organization of a system of secondary education in which there shall be so much of manual training and of special technical instruction as shall be found best suited to the needs of the class of citizens whose means may permit them to aspire with reasonable prospect of success to the degree of education which our secondary schools may be fairly expected to supply.

This means the provision of trade schools, of schools of both the sciences and the arts of construction, and of education in the use of the apparatus of the mechanic arts, either by public and general systems of education or by private philanthropy, the latter being almost the only method by which this end is at present, even to a slight extent, attained in the United States.

(3.) The organization of schools, colleges and universities of technical education in which instruction shall be carried on to a higher plane, even to the extent of providing means of securing the promotion of research and experimental investigation of those innumerable problems which only science can solve, but which must be attacked in a scientific manner and solved fully before the advance of applied science and the arts can be satisfactorily insured.

These higher schools of science and the arts are also evidently needed to provide instructors of youth in the next lower grade having that knowledge which is essential to their full success in their work. Light must come from above, always; it cannot be expected to be generated spontaneously in the mass to be enlightened by it. It is always the higher source of knowledge that must be looked to for the wisdom demanded by the learner below.

(4.) It is further suggested that, in each state, at least, there should be a centre of highest learning and highest work in scientific research, from which should come that inspiration and those new contributions to scientific learning which can come only through the labors of the few inspired investigators and men of genius who can be found attracted to such a centre by the opportunities of research there offered, as certainly as wealth attracts meaner minds.

Men of genius are "born, not made," and no direct effort can produce them where nature has not contributed the divine gift, the afflatus of insight into her most precious arcana. The most that any institution, that any state, can do is to gather them from all sides, as they may be found, in cottage or in palace, oftener in the former, and present to them the opportunities for which they yearn to penetrate the most intricate labyrinths of learning, the most secret recesses of natural sciences, and to quietly delve for the wealth there concealed from the common mind, however industrious and however earnest, still lacking this essential talent. It was not the wealth of Lord Bacon or of Newton that gave them power to give us a philosophy or a system of science; it was not the poverty of a Faraday that led to the production of grand contributions to human knowledge of physical sciences and the phenomena of chemistry. Native genius only, aided and stimulated by the opportunities that universities of higher education and laboratories fitted for the prosecution of the most delicate and most difficult of researches can offer, can to-day satisfactorily make original investigation of natural laws and phenomena. It is only in the larger and better endowed universities that such souls find their homes. Sir William Thomson in one of our minor colleges; Hoffmann without a laboratory; are as helpless as the investigating engineer without his machinery; they inevitably find their way into the best endowed universities, or they fail of their mission.

So far as we lack any or all of these essentials of progress in science pure and applied, we fail of full preparation for meeting the demands of the times and of ability to meet the fair demands of our people for such instruction and training as will enable them to enter upon their productive period of life with reasonable prospect of making themselves and those dependent upon them safe against the contingencies of coming years. To-day, we are *not* in a situation which justifies either complacent idleness or patriotic pride. We find among our own people to-day far too few trained artisans and

almost no skilled designers. We draw these classes far too generally from Europe, and our own citizens are far too generally losing in that competition for the good things of civilized life which is inevitable, under whatever form of government and under the best possible conditions of real civilization. There exists to-day in this country, and in this state no less, a most lamentable deficiency in systematic and general education of the masses for the work of the masses, in knowledge of the principles of art and of the arts, and in carefully developed skill in the trades, both coarser and finer. Technical schools exist on the continent of Europe by the dozen, where there is one in the United States. Skilled workers in the arts in which fine art has application exist by hundreds in those foreign states, where we have one unimported worker of similar character in our own state. The very first essentials of success in their production are with us hardly yet thought of, much less secured.

As remarked by the writer in the report to which allusion is above made:—

To secure the best social and commercial condition of our people, it is thus advisable to ascertain the nature of our soils, climate and other natural conditions, to learn what agricultural and manufactured products can be made to give the best return for labor and capital invested, and then to secure the highest possible proportion of labor, skilled and artistic, in the working up of raw materials and the production of fine goods, and to effect an exchange of all products of the labor of our own people among themselves, and thus to bring producer and consumer into the closest possible relations. Since the encouragement of the manufacturing industries is the most direct and most lucrative method of increasing the wealth of a community, all nations and all States are striving to absorb the greatest possible proportion of those industries which produce that fixed and definite quantity of manufactured products which only the world can, at any one time, consume. As this amount is always limited by the demands of a certain part of the total population of the world, there is constantly in progress a sharp, and often desperate, competition for the control of the market. In this competition, those States and those nations will be most successful, and most independent of commercial and financial changes, whose industries are most largely skilled industries, and are most varied in their character. The products of the most highly skilled labor are in demand, even when unskilled labor finds no market; and where there exist a multiplicity of indus-

tries, the probability of general depression arising from the not infrequent depression or entire extinction of any one branch, is so much the less. It is also an important consequence of the policy which leads a State to cultivate those branches of manufactures which demand the highest skill and greatest talent, and to encourage a varied industry, that the waste of labor and of capital in transportation and in coarse work is reduced to a minimum. The most is thus made of every pound of metal or of textile material brought, raw, into its markets, and the highest prices are secured to the agriculturist and to all producers of native raw materials, whether agricultural or metallurgical.

To secure the results sought by every patriotic citizen, by every intelligent statesman, it has to-day become essential that every possible form of systematic instruction in principles and in approved methods of application of science to the work of the people should be employed, and that the state should take in hand such systems of education has become quite as essential to their most successful and fruitful employment. No private endowment can give the needed facilities for such education of a people; nor can any private supervision, however intelligent and however patriotic, secure that exact apportionment of means and of method, and that co-ordination of schools and of courses of instruction, that are essential to maximum return at maximum cost of time, labor and money.

Again:—Experience has shown these systematically and intelligently conducted schools to be far more efficient means of education and training for the workmen than even the best managed mill. The impossibility of giving methodical instruction in all matters of detail, or of accommodating the time and the movements of the instructor to the capacity and progress of the learner, the jealousy and the unaccommodating spirit of overseers and managers, and the utter impossibility of permitting the financial results of commercial work to be affected by the interests or the blunders of the novice, combine to preclude, absolutely, all effective tuition in the mill. Furthermore the mill is the more successful, commercially, as it confines itself the more strictly to a particular grade or a special class of goods, for the production of which it is best fitted, and as it confines the operatives, each to a certain department and to a single and never-changed kind of work; it is thus impossible to reconcile the interests of the learner, who must seek a knowledge of all departments and of every operation, with those of the mill owner who

is most prosperous when each individual is confined to the task for which he or she is most thoroughly fitted. In the school the learner can, without difficulty, be taught each operation of the trade in detail, and can become thoroughly familiar with it without causing either inconvenience or pecuniary loss. There are hundreds of these trade and technical schools in Europe, and it requires no remarkable intelligence, and no peculiarly good judgment, to indicate the certainty that the extent to which this directly practical and comprehensive system of education of the people has remunerated these European nations must be more than commensurate with their cost in time, talent and money. That their number is still increasing, and that they are overcrowded with students, are facts which are the best possible evidence of their efficiency and of their appreciation by the people of Europe.

In that extension and diversification of industries which is universally known to be the most profitable and effective of all ways, even if it be not the only way, of rendering a people more prosperous, their instruction in the applications of art to industrial design is well understood to be quite as essential as in the useful adaptations of science, and as the cultivation of the highest skill in the various branches of manufactures.

It is to the systematic and persistent, the intelligent and the patriotic, promotions of such methods of insuring the superiority of the French people in the art-industries that France owes very largely, if not mainly, her present position as probably one of the most comfortable nations, all things considered, on the globe. On an area about equal to that of the State of Texas, is supported in comfort, and—outside the larger cities in which the anarchical and the socialistic elements are causing their natural disturbances of natural conditions—in contentment, a population two-thirds as large as that of our own country. The people of France, thanks to the foresight and statemanship of their leaders of the last century in following the suggestions of Vaucanson and his contemporaries, have succeeded in developing to a greater extent than can be seen in any other country, every industry which has offered opportunity for application of the French instinct of beauty and art. Her manufactures have enormous extent; her art-industry products are the source of no less remarkable wealth. Of the whole population about ten per cent are engaged in commerce, a million in manufactures of textiles, and a half-million in mining and transportation.

Her annual demand for silk alone, for weaving and otherwise working up into goods of high grade and value, amounts to above \$25,000,000. It is on such skilled labor that she gains most wealth.

Similarly, in Germany, starting after France in the road that every civilized nation must inevitably take, or fall, we find that she has now founded trade and technical schools in every corner of the empire, and the visitor from the United States is everywhere impressed with the completeness with which the system is established under government supervision and direction. He may also be oppressed by the thought that the time may come, may indeed be at hand, when his own country may be falling into the rear. Should at any future time, a direct competition arise between that country and the United States—a contingency, probably, fortunately not soon to be anticipated—the advantage possessed by Germany in this long established system of training of her people, and the possession of a population of well-educated and trained artisans, may tell strongly to the disadvantage of the United States, and may bring about consequences that it may not be pleasant to contemplate. As already remarked elsewhere by the writer:—

It is sufficiently evident that in Germany, even more than in France, the governing and the educated classes, instead of standing aloof from each other, and instead of forgetting, as is too generally the case in our own country, those great facts and those imperative duties which every statesman does, and which every citizen should, recognize, have worked together for the common good, and have given Germany a vantage-ground in the universal struggle for existence and wealth which is likely, in the future, to enable that country for many years steadily to gain upon all competitors. It is now generally admitted that Germany is the best educated nation of the civilized world; there is danger that the United States may, with reason, come to be reckoned the worst. Germany is gaining a better industrial position daily; our own country is retrograding in all that tends to give manufacturing pre-eminence, except in the ingenuity, skill and enterprise of its people; and the one great, the vital, need of our people is a complete, efficient and directly applicable system of technical instruction and of industrial training, if they are to avoid the successful and impoverishing competition of nations which, like Germany, have already been given that advantage by their statesmen and educators a generation earlier. The question whether this comparison shall remain as startling and as discreditable to the people of the United States in future years as it is to-day, is to be deter-

mined by the ability of our people to understand and appreciate the importance of this subject, by the interest which the more intelligent classes may take in the matter, and upon the amount of influence which thinking citizens and educated men and the real statesmen among our legislators may have upon the policy and the action of the general and the State governments. The promptness and energy which we may display in an effort to place ourselves in a creditable position among educated nations, will be the truest gauge of the character of the people of the United States. Judged by her progress in this direction, Germany is far in advance of us in the most essential elements of modern civilization.

The German system of technical and of trade education and training is thoroughly complete, and as thoroughly national. Every German State has its preparatory schools, its trade schools, its polytechnic schools, and some have even a technical university.

Thus, as has been shown, a complete system of technical science—instruction and of industrial education has been incorporated into the continental educational structure, which places before every child in the land the opportunity of giving such time, as the social position and pecuniary circumstances of its parents enable them to allow it, to devote to the study of just those branches which are to it of most vital importance, and to acquire a systematic knowledge of the pursuit which surrounding conditions or its own predilections may lead it to follow through life, and to attain as thorough a knowledge and as high a degree of skill as that time, most efficiently disposed, can possibly be made to give him. There is here no waste of the few months or years of, to him, most precious time, which the son or the daughter of the humblest artisan can spare for the acquisition of a limited education. Every moment is made to yield the most that can be made by its disposition in the most thoughtfully devised way that the most accomplished artisans and the most learned scholars, mutually advising each other, can suggest. One day in such schools as those here described, is of more value to the youthful worker than a week in the older schools, or than a month in the workshop or the mill. Thus, while the fact is recognized that a general and liberal education is desirable for every citizen, the no less undeniable fact is also recognized that few citizens can give the time to, or afford the expense of, a symmetrical general course, and that the interests of the individual and of the State unite in dictating the provision of such systems and means of industrial education and training as are now actually provided.

Said that distinguished British engineer and technician, John Scott Russell, writing as long ago as 1869:—

“Twenty years ago professional duty took me to Germany for the first time. I cannot forget my first impressions at the sight of whole nations growing up in the full enjoyment of systematic, organized, I might almost say perfect, education. I had already become acquainted with some theories and forms of education. I had read Plato's description of the perfect training for a nation. I was familiar with education in England, in Scotland and in France. I was familiar with elementary school teaching, had enjoyed the privileges of university education and the still higher education of the workshop. I was familiar with the systems of Bell and of Lancaster, having had personal acquaintance with its authors, and had myself taken an active part in schools of art and mechanics' institutions; but I confess to have been profoundly astonished—I may say humiliated—at the sight of nations whose rulers had chosen to undertake the systematic education of their people, and of peoples who had chosen to bear the burdens and to make the sacrifices necessary to obtain it. I do not know to what men, or class of men, in Germany the forethought, organization and patriotism are to be attributed which made them lay aside personal ambition, political animosity, religious sectarianism and State parsimony, in order to unite all classes of the people in a unanimous effort to raise every rank in society to a higher condition of personal excellence and usefulness, and, by diffusing equality of education, to extinguish the most grievous of class distinctions.”

Enough has, however, been stated to enable any one interested to perceive how alarmingly unfavorable to the United States is a comparison of the work done on opposite sides of the Atlantic. Although a beginning was made in the United States many years ago, and although some desultory work has been done from time to time, we have, as yet, no systematic scheme of general industrial education and training under the fostering care of either the general or State governments. While the system of general primary education is more widely spread and more effective than in any country in the world, and while we have a larger number of schools, in proportion to population, than perhaps any other country, we are destitute of trade schools, and have extremely inadequate provisions for industrial education of any kind and for any class of our people.*

* *Vide* N. J. Report on Encouragement of Manufactures, for detailed accounts of continental methods and schools.

WHO SHALL TEACH FRENCH OR GERMAN?

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The question of the study of Modern Languages is one of the educational questions of the present hour; but it seems to me that until now one side has not received a due share of attention from educators. It is, of course, important to know what we must teach and how to teach; but we ought also to know who shall teach.

The whole question, of course, is equivalent to asking who possesses the necessary requisites for successfully teaching the Modern Languages, or let us say for convenience sake for teaching French, the same requisites, *mutatis mutandis*, existing for the teacher of German.

The necessary qualities of the successful teacher are; 1st, A thorough knowledge of the language to be taught; 2d, The faculty of bringing that knowledge to the pupil's mind; and 3d, Moral authority over the pupil so that he may readily accept the teacher's lessons.

Now, it is a sad reality that among the teachers of the French language only a small number are in actual possession of the necessary amount of ready knowledge. I say *ready knowledge* on purpose, for it is by no means sufficient to have once upon a time gone over the ground of French Grammar and French Literature in order to be capable of giving good lessons. And even Frenchmen and Frenchwomen are guilty. Among those who are employed in teaching their language we find all degrees of knowledge and, alas, of conscious and unconscious ignorance. Some announcing themselves as *professors*, not only of good French, but of "*La langue parisienne*," were once merchants, soldiers, clerks, lawyers, clergymen and even, as I know of my own knowledge, masons, dyers and coachmen. Fate has thrown them to the hospitable shores of this country, a new life has penetrated them, and here they are transformed into teachers and are ready to discuss all things they know *et de quibusdam aliis*. Who is to be blamed for this state of things? I hardly know; but in some cases that came under my observation, they were kind and misguided American friends who supposed that

even a French coachman is able to teach the refined language of France. A few years ago a lady living in one of the large cities, let us say three hundred miles away from Boston, had discovered a poor Frenchman sorely in need of kind help; he had but recently left Europe, wanted work and could not find any. So the lady of whom I have spoken thought that the best thing to be done under the circumstances was to make a teacher out of this poor man and that on account of my extended acquaintance with the surrounding schools I might be of some help. The man was sent to me with a letter of introduction describing in the most glowing terms the various merits of the candidate. After a short conversation I found out that after serving in the cavalry he had become a coachman and that after a while the laudable ambition had taken hold of him to better his fortunes by emigrating to America. I declined to forward his present projects; but the lady patroness has not yet forgiven me for not adding another nullity to the existing number of French teachers. But I have known coachmen, dyers, chambermaids, etc. to enter the class-rooms of private and public schools and even of higher institutions.

This is doubly sad for at the same time some modest and deserving scholar was probably wandering through the streets eager to find a few lessons for which he would receive less than a laborer readily obtains for his day's work.

Cannot a remedy be found? I have often thought that if one of the great colleges, like Harvard, where an honored and learned French faculty has been gathered, would, after a careful examination, deliver a certificate of competency to all comers, both institutions and families would thus find a much needed security. But no time of residence ought to be required, for this would make of this examination a practical impossibility for many of those who come here to build up anew their shattered fortunes. Would not Harvard herself be the gainer if by this simple means the preparatory study of French were improved? Probably other institutions would follow her example in different parts of the United States, poor teachers would be discarded, and best of all, the deserving ones would more easily gain the confidence of the people at large.

But in spite of what Miss Brackett has said in *THE ACADEMY* for November, 1887, page 337, Frenchmen are not the only sinners, and no amount of American ingenuity can replace a thorough and ready knowledge of the language. By ready knowl-

edge I mean the kind of knowledge that will prompt in the classroom the use of the correct language and the giving of the correct rule. That even American ingenuity will always suggest this one may well doubt, on seeing a lady of Miss Brackett's science and experience confound the treatment in French of passive and reflexive forms. She says for instance p. 339 (ACADEMY, 1887), "In fact he (the child) would have done it himself if left to himself; at any rate after being shown once that it was an adjective, and whenever he finds a past participle used with *être*, whether used passively or *reflectively*, he will make no mistake."

Simplifying the rules is assuredly an excellent thing provided this can be done consistently with historic truth; and I should recommend a study of historical and comparative Grammar as an instrument that in a skillful teacher's hands would furnish many explanations of striking simplicity even for beginners. Historical Grammar teaches, for instance, that French has no passive form and agrees on this point with Miss Brackett; this passive form having been entirely replaced by the conjugation of the past participle with the different tenses of *être*. As a general rule I do not deem it wise to simplify when the simplification is not a true one, for nothing is more discouraging than to be told what I once heard from one of my university professors in his opening lesson: "Gentlemen, forget all you have been learning so far in this branch, it was all worse than useless." Now whether the pupil be destined to pursue his studies beyond the elementary knowledge or not, it ought to be a matter of conscience with all of us to have him never either hear such words or feel this disappointment. And a little simplification is dearly bought at that price.

It is true again that the common run of school grammars published both in France and in America have generally made no use of the rich resources placed at their disposal by the efforts of scholars like Diez, Gröber, Gaston Paris, Darmesteter, in Germany and in France. Individual fancies that do not rest on these connected and scientific efforts must ultimately end in failure and in discouragement for the pupils, if it were only for the reason that the teacher has unfitted them to follow the lessons of another, the original standpoints being too different.

Enough of this though; the most common fault to be found with the generality of American teachers is precisely the reverse of the one to which I referred. It is their utter lack of originality or

rather of any power to get away from the text book, making the lesson a plain and simple rehearsal of what a certain author has said. This kind of teaching is mechanical and dead, generally unproductive of any results worth having; and so long as any teachers are contented with that sort of teaching, and principals, parents and pupils willing to tolerate them, no serious knowledge of any language can be had, no discipline at all comparable with the one gained through the study of Latin and Greek.

This want of originality or rather of personal force is entirely due to a distrust that the teacher feels in his own power. The only remedy is that no one shall be allowed to teach French who has not given much more serious proofs of knowledge than those resulting from an examination where the main work is a kind of translation from French into English.

Another point where American teachers are inefficiently trained is the translation from English into French; the translation books in common use are often very deficient. If compiled by a Frenchman, the English part has suffered; if composed by an American or Englishman the French synonymy is poorly treated, the rules of Syntax sometimes misunderstood and misapplied, all varieties of speech from the loftiest poetry down to every day vulgarisms intermixed in sad confusion.

Pronunciation and accentuation are evidently the strong ground for native teachers, and although some principals and masters seem to make light of a poor pronunciation and poorer accentuation, this view of the question is hardly satisfactory to many families, and to many pupils, and it seems to me, hardly consistent with sound philosophical principles. Our languages are an expression of thought by the means of sound, and our letters are only images of sound. To pass over that fundamental truth and boldly give English sounds to French vowels and, what is worse, English accentuation to French syllables is absurd. On the other hand, to reduce the teaching of French to a parrotlike repetition of a certain number of sentences is undoubtedly worse. What then can be done?

First let alone ridiculous representations of French sounds by English compounds. Last week I perchance opened a book, which to my certain knowledge, has been sold by the thousand, representing the pronunciation of "Monsieur" by "moon—sheer." In nearly every work of that class our nasal sounds are represented by the "ng", a sound which no Frenchman ever uttered. But admitting

even for argument's sake, that English and French have common sounds, an opinion which I cannot possibly share, the very different way in which vowels are sounded in the different States would by itself be a sufficient reason for absolutely rejecting a system of notation which has only variable quantities for representing sounds which are a certain quantity.

The only way for American teachers who cannot go to France is to obtain a scientific training and to learn the principles of sound expression in the works of men like Sievers and Viëtor and then to have recourse to practical application under competent native teachers.

The second requirement, the faculty of bringing knowledge to the pupils' minds and calling into activity their mental force, I do not propose to touch, because if the power is not natural to the teacher, only a regular normal training or long experience can develop the latent faculty. And although of course the point is a most important one, this power is readily recognized wherever it exists. Two remarks only I wish to make. One is that the scanty recognition of foreign diplomas, or rather the absence of discrimination between the different grades, has made it difficult for the regularly trained foreigners to obtain positions which they could have filled with credit.

The second is regret that there is not even one regular institution where the teaching of languages is the subject of instruction. This seems to have been left altogether to summer schools and to a few private institutions; and, with a very few honorable exceptions, one must acknowledge that this normal teaching is entirely inadequate.

I come now to the third point, the teacher's moral authority over the pupil. And here again allow me to treat my subject with some restrictions. A great many of my colleagues have had a more extended experience than I have had, especially in large or public schools, and are surely more competent than I am to judge American teachers. I wish especially to present some considerations about the employment of foreigners in American schools, and to explain what I understand to be the reason of the many failures on their part to control the classes with which they have been intrusted. It seems that if the reasons were clearly understood, effective remedies might also be found.

I see drawbacks of two kinds, some in the principals and some in the French teachers.

There are principals whose requirements are impossible, or who are at least so difficult to suit, that they foster deceit, hypocrisy and a low moral standard. Let me speak frankly about one requirement that is frequently made. People look for French protestants; they are rare enough; but when people go looking for a French Presbyterian, a French Methodist or a French Baptist, what can possibly be said in the face of such utter ignorance of the real state of things? Is it not sufficient to look for a man with conscience enough of his own, not to encroach upon the sacred rights of pupils and families? And what can possibly be gained by an outward acquiescence in certain religious tenets? And if this outward submission be granted, if the teacher have degraded and lowered his own standard of right and wrong, if he have stifled the voice of his conscience, do these people really believe that he will not deceive them?

Others go looking about for Parisians; nothing but pure unmitigated Parisians will satisfy them and their "patrons". An angel that would have winged his way from Chaillot or Pontoise to the threshold of their school would have the door flung in his face. And strange to say, just as Frenchmen coming to America are changed into Baptists or Methodists, so they are changed and transformed into Parisians. I need not tell any one who knows anything about France and French literature that at least ninety per cent of the great men that have made our literature celebrated all over the world are, horrors! provincials! Victor Hugo would have been unfit to teach French poetry in Mrs. Vanity's school; he was not a Parisian: Daudet and Cherbuliez not fit to teach pupils French prose; the one is a Southerner by birth and the other hails from Switzerland. Madame de Stael who wielded the scepter of conversation in Paris, was, *horresco referens*, only the daughter of a Swiss banker.

This state of things tends inevitably to prevent honest and able men from offering themselves for positions where a lying charlatan will be preferred.

Other principals wish for teachers who are masters of all living languages, or who can teach dancing, fencing, drawing and French. What I say seems a laughable exaggeration. Alas! it is a sad picture of reality.

Sometimes also principals encourage foreign teachers to take university titles which are not theirs. The first year I taught in this

country I had been engaged in a small private school in the vicinity of New York for teaching French and German. All went on beautifully until at the end of the school year I found myself to my utter discomfiture labelled in the catalogue as Ph. D. of the University of Cologne. I fell like a tornado in the room of the principal and asked for an explanation. I told him that there had never been a University of Cologne and that my title was not Ph. D. Where had he obtained this piece of information? He blushed and thought I must have told him about the University, and since I had studied languages I must be a Ph. D., and Cologne being a well known city, the title would make a good impression on patrons. I asked him what right he had to stamp me thus as an impostor before the world. We separated never to meet again.

Last year a young European came to me wishing to be recommended for a position. I called for his papers and noticed immediately that although he had studied theology in Switzerland and Germany and passed his examination as "Candidat" he was also labelled Ph. D. When I inquired where he had obtained the degree, he explained to me that the principal of the school where he had taught, told him that people would understand much better the value of his studies if he assumed a Ph. D. His experience was similar to mine, and I called his attention to the fact that a serious discrepancy of the kind would be sufficient to prevent his engagement if the truth were known.

But it is time now to turn to the teachers themselves. Very few, at the outset, have any understanding at all of America, the character of the people and the institutions. Hence the almost continual recriminations, the longings for the old home, the failure to appreciate the great and good things which are under their eyes. This could hardly be otherwise. I remember having passed through a series of similar experiences, although, I must confess to having early learned to love some American friends and having through them and by their help seen things in a much more favorable light even during the first year of my sojourn here.

The customs of our childhood are dear to us, the ideas then implanted in our minds have deeper roots, and when we come here to find a new world, it takes some time to love and to appreciate. Of two teachers, then, the better one will be the one whom fortune will have thrown in close contact with Americans; the one who does not constantly look for the companionship of his former compatriots, the

one who has cast away, as much as possible, his European skin and has learned to love the country of his adoption. Not the flatterer who admires indiscriminately whatever he sees or hears, or the one who speaks ill of his native land. His love is not worth having.

But whatever may be the qualities of assimilation of the European teacher, he will have his bitter hours. In Europe the discipline of the schools is as a rule much stricter, much more autocratic. The "ipse dixit" of a teacher is the end of all controversy. Here you rely more on moral suasion; it is for the teacher to gain the esteem and respect of his pupils. And a foreigner coming among them with a different language, different habits, and often little time in which to show his qualities is at a great disadvantage. But true manhood or womanhood will prevail in the end. A bond of common interest and common sympathy does often exist between the American pupils and their foreign teachers.

But now to my conclusion; who shall teach French? I should answer *vir bonus DOCENDI peritus*, whether he be Frenchman or American. Both are able to do it under certain conditions, and it is desirable that too great uniformity in ideas and in modes of teaching be avoided. If you choose a Frenchman or a Frenchwoman, be sure you have selected an honorable person. Europe casts off her criminals as well as those who for some legitimate reason wish to change their abode. How are Americans to know which is which? Sometimes a little of the American ingenuity which Miss Brackett applies to French verbs, might be very properly used in this case. Do not too easily pass over faults with the remark "he is a foreigner and does not know any better." I beg to assure these over-indulgent persons that educated people do know better and that nations differ only as to small matters of outward etiquette. An honest man is an honest man the world over. He may lift his hat when he ought to wait in America for a lady's greeting, but any deeper offence ought to be resented, and the man judged accordingly.

Papers, and all Europeans ought to have some papers with them as they can readily obtain them, may be of great value in the examination of a teacher's record. Why are they not oftener required? I know of a European jail bird who had obtained an eminent position as a teacher in one of your great cities, and who being found out, obtained immediately another appointment which he now holds at some distance. In either case no inquiry whatever had been made about the past.

In some cases the official papers may be wanting for political reasons, but even then some friend who is acquainted with the state of affairs will generally be able to judge correctly. Last year a man was sent to me, who pretended to come from a German university which he named. He told me that he had left his papers in Europe, and I replied that it did not matter much, if he would give me an outline of the courses he had followed. He stared at me, blushed, mumbled some excuse and disappeared. A calendar of European universities may be of great value in unmasking impostors.

Europeans ought always to be examined in English, and in some English branches. If they can barely translate, and speak some broken sentences, by whatever method they may teach, they cannot understand their pupils, or their difficulties. This is a point of capital importance where I agree with Miss Brackett. But the converse is equally true of American teachers; if their knowledge consists only in a limited capacity for translation into English with more or less accuracy, if they can only speak a few broken sentences of French, if they cannot write a French letter without blundering in their orthography and in their syntax, they cannot understand the difficulties of the French.

Of course a knowledge of English is of the greatest importance to a teacher of French in this country, but I am bold enough to say that a knowledge of French is much more important in a teacher of French and, other things being equal, such as honorableness and general capacity, I should not hesitate in preferring a Frenchman ignorant of English to an American teacher of French who does not know the language he is to teach. But the sad necessity of choosing between those two evils no longer exists. I know of a number of Frenchmen who are masters of the English language, and if a great institution like Harvard would, as I suggested, do something to call attention to deserving candidates, we should soon see a great change. Only capable teachers would have the chance of gaining entrance to our schools.

On the other hand, although mostly left to private instruction, Americans have of late years in much larger number given their time and study to modern languages, and I am happy to say that I often see not far from here many whose equals may possibly be found, but whose betters I do not know.

WHAT IS A READING BOOK?

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There seems to be in some minds a notion that a reading book is to be used solely for the purpose of imparting useful information to the pupil. To this end books have been compiled including the most important facts in physical science, the choicest specimens of thought and expression in ancient and modern literature. These compilations have been accepted as reading books, and have been advocated on the ground that, as they contained nothing but solid facts, or the highest intellectual conceptions, they were infinitely beyond the ordinary "Reader." But is there not a fallacy in this assumption? No one will question the intrinsic value of such books for school reading if the interpretation and assimilation of the thought is all that is aimed at. But in the technical acceptance of the word, does not a "reading book" imply much more than this?

Reading is the process of obtaining ideas from the printed page. So far it is a purely intellectual exercise. Reading aloud is the vocal expression of ideas, and thereby becomes a muscular as well as intellectual process. For this vocalization, then, is needed not only the quick eye and clear understanding, but a physical development including proper bodily positions, the power of deep breathing, ability to economize and manage the breath, skill in articulation, modulation, and inflection.

With the exception of the care given to some of these matters by conscientious teachers of singing, this kind of instruction belongs exclusively to the reading lesson. It is not maintained that every aid and grace of elocution is not as desirable in other branches. Certainly fine vocal expression doubles the value of the recitation in history, mathematics, or literature, but the teachers of these branches are not supposed to give time and thought to the manner in which facts are recited. The teacher must be satisfied if the pupil's statements are correct, no matter how indistinct or disagreeable are the tones of voice in which they are uttered. To be able even to hear and understand the pupil is often considered by the teacher to be unusual good fortune.

The teacher of reading, on the contrary, is properly supposed to devote his entire attention to these elocutionary points. The matter which forms the reading lesson while of course it must in its grammar and rhetoric as well as in the meaning of the thoughts it conveys, become familiar to the student, is primarily intended to give him opportunity for practice in physical exercise, calling for as much variety as possible in vocal expression. It must then be apparent that a book containing selections which, no matter how great the range of subjects, are all of one distinct style, is suitable for a reading book only to a very limited extent, however valuable may be the information conveyed. Compilations in natural history or in any of the natural sciences are purely didactic in tone; so also are a great part of the selections which are made with exclusive reference to literary merit. Even if the narrative and descriptive elements are added, the change of style does not necessitate any change of vocalization. What teacher of vocal music would be satisfied to develop the voice of a pupil upon one sort of song and that sort, too, requiring only the most ordinary expression? The greatest variety of style is used in order that the voice may become skilful enough to render with equal ease the slow, solemn chant or the light, dancing melody. A pupil may be able to read aloud satisfactorily every scientific and historical statement which all his books contain, yet be utterly unable to give adequate expression to the lightness of Milton's "*L'Allegro*," the solemnity of Bryant's "*Thanatopsis*" or the grandeur of Webster's "*Reply to Hayne*." The delicate and delicious humor of Lamb, Irving, and Holmes; the natural conversation of the very human people created by George Eliot, Charles Dickens, or Harriet Beecher Stowe; the ringing, patriotic utterance of Macaulay's spirited odes,—what facility of expression in these lines of reading is afforded by any amount of drill in the reading of such facts as "*John Foster, an English politician and historical writer, was born at Newcastle in 1812,*" or "*The first traces of the existence of dry land occur in the old red sandstone,*" or "*The Greeks elevated astronomy to the dignity of a science*"?

On the other hand, it is not the province of our common schools to give pupils extensive drill in the science of elocution. This is an art to be cultivated like music, painting or sculpture by those who have special endowment and can secure special instruction with extra time to devote to the work. Not ten per cent of the pupils in our public schools have any special talent for elocution, and all

attempts at showy, sensational or dramatic reading are wholly out of place in the school-room; but it is considered indispensable that all pupils, however lacking in artistic instincts, should be able to express in drawing some knowledge of the shape and proportion of external forms; in music, the fundamental relation of the seven notes of the scale; in reading, the natural utterance of any ordinary human sentiment or emotion. But in order to acquire this last named ability, there must be opportunity for as wide a range in the reading lessons as in the ordinary utterances of everyday life, including as they do, fear, anger, doubt, disappointment, sadness, animation, excitement, satire, humor, and joy.

The objection is sometimes made that reading books are composed of detached selections which break up the chain of thought running through the books or articles from which they are taken. If variety is conceded to be essential in a book of this kind, how else can it be secured? And is the fact that the selections are but fragments of the originals,—if the originals are worth anything,—any argument against an acquaintance with them? It would of course be an admirable arrangement if the time given to the study of literature were sufficient to introduce the pupil to all the masterpieces of the language in their symmetry and completeness. But is not half a loaf of the bread of life better than no bread at all? Nay, are not even the crumbs that fall from the lavish banquet spread for us by the poets and philosophers of the race a rich feast with which we cannot fail, in some measure, to be content? A few detached ideas from great thinkers,—what stimulus may they not afford to the growth of the intellectual life! The pupil whose reading book gives him only a fragment of one of the magnificent orations of Wendell Phillips will know what manner of man was the speaker, and, from even that short extract, may acquire a taste for more of that brilliant rhetoric and convincing logic. A glimpse in the reading lesson at the struggles of poor Nicholas Nickleby to become self-supporting, at the devotion of little Nell to her old grandfather, at the kindness of the great-hearted Cheeryble brothers, may touch in other hearts, the springs of manliness, self-sacrifice, and generosity which no mere study of literature would ever move. Such introduction may also lead to a lasting love and enjoyment of all the books of that writer whose pen was always busy in attempts to right the wrongs of humanity. Some of the simplest forms of the philosophy of Emerson, choice specimens of the humor of

Holmes, a few poems of Longfellow and Whittier, a taste of the quality of Macaulay, Coleridge, and Hazlitt,—what evidence they give the readers of the intellectual treasures stored for them in libraries,—of the inexhaustible mental enjoyment to which they may look forward !

It is one of the mistakes of the present to believe nothing valuable which does not possess the flavor of antiquity, and as a consequence many reading books are compiled with an eye single to the literary glories of the past. But why not admit that in the present, which from its very nearness and familiarity we are inclined to under-rate, there are gifted men and women whose words have already caught the ear and the heart of the world, and who may in the future achieve the same immortality as that won by their predecessors? The world will probably never have better plays than those of Shakespeare, but what reason is there for the assumption that it will never have any as good? Homer, Virgil, Dante, and Milton must always command our admiration, but how can we be sure that in a riper age other equally great poets may not arise? In this era of marvellous intellectual activity our large number of monthly periodicals, even, in some cases, our daily newspapers, furnish articles on interesting and profitable topics, perfect in rhetorical finish, entertaining and instructive in the facts or observations presented, which form excellent material for the regular reading lesson, though possibly the names of their authors are entirely unknown.

In a reading book, as in all other text-books, is it not the means to an end which is sought rather than an end in itself? First, the power to read aloud easily and intelligently; secondly, the cultivation of a taste for reading,—are not these the chief objects in this line of labor? It is a significant fact that, in the judgment of wise and experienced instructors, both of these ends are more successfully attained by the use of *St. Nicholas* and *Wide Awake* than by some of the best "Readers." A living interest in the thing read, is the first requisite to good reading,—using the term in its intellectual, and not merely mechanical sense. Milton and Spenser may be greater poets than Bryant and Lowell, but the average boy and girl care less about the "Fairie Queen" than "The Planting of the Appletree," and the opinions of Hosea Biglow on the affairs of the country are of vastly greater interest than Moloch's speech to the fallen angels.

But notwithstanding all the careful thought given to this particular branch of study,—concerning the best means of instruction in read-

ing, and the best material for this purpose,—two sad facts force themselves perpetually upon the attention of the thoughtful educator,—first, that reading is less successfully taught than the amount of time given it should warrant, and, secondly, that it does not result, as it legitimately should, in giving pupils cultivated intellectual tastes. How seldom are the pupils of our great common schools stimulated to an active and profitable curiosity in turning over books in a library, and to the pursuit of those intellectual delights which are a comfort and protection through all the experiences of life?

There is but one explanation possible for this lamentable state of things,—bad method in the teaching itself, or, rather, long years of neglect of the simplest principles of the art. To-day in every high school and college of the country the teacher of elocution must necessarily give two-thirds of his time to continuous drill upon the most elementary physical and vocal exercises, proper positions of body, rational management of the breath, and distinct utterance of the sounds of the language. What mental stimulus can be afforded by such sort of instruction in advanced classes, or what time can be given to the appreciation and enjoyment of literary excellences and beauties? It is like attempting to create an interest in the wonders of the starry heavens by turning the study of astronomy into a mass of definitions of lines and circles, or trying to excite a love for the higher mathematics by everlasting repetition of the multiplication table. “To everything there is a season;” physical and vocal exercises, as a preparation for reading, belong as truly to the elementary stage of school-room work as do tables and definitions for mathematical science. It is only the teacher of singing and of reading who is compelled to waste such an enormous amount of time in doing with the sixteen year-old pupil the primary work which properly should have been done when he was but six. And the work done at six is a hundred fold easier and more profitable than it can possibly be at sixteen, as it is easier to keep the young tree from growing gnarled and crooked than to untwist and straighten the old one.

When the teaching of reading is made as logical as the teaching of arithmetic, providing for physical development in advance of the mental, there will no longer be any need, in our advanced schools, of the technical “reading book.” All reading will by that time resolve itself into an intellectual exercise, the proper physical foundations for which shall have been firmly established and which shall leave the mind free for the highest forms of expression and enjoyment.

*DON JOHN, IACHIMO, IAGO.**

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For every student of Shakespeare these men form a trio in villainy. They are separated from the other evil men, not only by their proficiency in crime, but also by the extent and nature of their wickedness. They are the villains of private life. They endeavor to destroy the family. The others attempted to overthrow kingdoms and to usurp thrones. John, Richard III. and Macbeth had the nation for their prey, and the crown for their reward, but Don John, Iachimo and Iago had no such comprehensive designs or visible recompense. They aimed their blows at one man, at a single enemy: they stabbed in the dark without declaring war, and they struck through a woman. It is these facts which give us a stronger feeling of aversion toward them than we entertain toward those whose evil deeds were of a wider scope. The extent of Macbeth's crime filled all Scotland with sufferers; but company mitigates sorrow and every Scotsman had a sympathiser in his neighbor. But Hero, Imogen and Desdemona each had to bear her grief by herself. Imogen wanders alone "still sick, heartsick" into the cave of Belarius. Desdemona says:

"Do not talk to me Emilia, I cannot weep" * * *

"It is my wretched fortune."

The villainy of these two is of an intellectual nature. Their ability to do evil lay in the brain rather than in the muscle. They were men powerful in craftiness and dissimulation rather than in strength of arm. We do not intend to insinuate that they were cowards, for Iachimo and Iago were soldiers by profession, and we have no cause to doubt their valor. Nevertheless it is true that their peculiar kind of villainy, aimed as it was against unsuspecting men through innocent women, required nimble brains rather than strong hands.

Although they have these traits in common still each one is a character by himself. Each has a marked individuality and repre-

*This sketch is printed as a suggestion of a kind of literary work entirely within the appreciations of high school pupils, not beyond the powers of most teachers, and leading directly to a better and broader understanding of literature than can be gained from the minute grammatical and rhetorical study often lavished upon English classics.

sents a certain stage of development in villainy. It may be interesting to trace the points of difference in these three, and to perceive how from the germ Don John blossomed the perfect villain Iago.

Don John is introduced to us as a melancholy man. Conrade says to him "Why are you thus out of measure sad?" In reply Don John strikes the keynote of his pretended character.

"I cannot hide what I am. I must be sad when I have cause, and smile at no man's jests. * * * * Though I cannot be said to be a flattering honest man, it must not be denied but I am a plain dealing villain. * * * * If I had my mouth I would bite."

He poses as the outspoken frank villain, the man who lessens his crime by the rudeness with which he commits it. So little skill has he in concealing his character that Beatrice says of him "How tartly that gentleman looks. I never can see him but I am heartburned an hour afterward." And Benedict speaking of the two princes says

"If their wisdoms be misled in this,
The practice of it lives in John the bastard,
Whose spirits toil in frame of villainies."

The reason for this melancholy and ill-temper is a general dislike towards his brother and Claudio. That there is any definite cause of hatred does not appear. He had no wager like Iachimo, no ground for complaint like Iago. The only possible reason is his illegitimate birth which may have caused him to look with jaundiced eyes upon the whole world.

Besides being less skillful in dissimulation than the other two, Don John is also inferior to them in intellect. His desire to do harm exceeds his ability. His first attempt to make trouble by arousing Claudio's jealousy of Don Pedro was crude and unsuccessful. "An ill-favored thing, but his own." It should have served as a warning to "the most exquisite Claudio." That it did not is due to his own heedlessness and not to Don John's shrewdness. The second and the successful attempt was not the scheme of Don John, but of Borachio. He conceived and executed it while his royal master served but as a showman to collect the audience and display the puppet.

Don John exhibits malignity toward the woman he is using as an instrument—a quality of which we have no trace under the same circumstances in Iachimo or Iago. While they are without feeling toward Imogen and Desdemona and use them with perfect heartlessness, still they are polite. Even while slandering Imogen,

Iachimo realizes that "all of her that is out of doors is most rich," and while wronging her most he speaks of her as "a heavenly angel." As for Iago he is so kind that in her sorrow Desdemona sends for him to aid her.

"Oh, good Iago,
What shall I do to win my lord again?
Good friend, go to him."

But Don John without any motive calls Hero "a very forward March chick." Surely he could not have chosen a more inappropriate adjective. When slandering her to Claudio he calls her disloyal and then adds "The word is too good to paint out her wickedness; I could say she were worse: think you of a worse title and I will fit her to it." The crowning piece of malignity is in church when Claudio, her lover, and Don Pedro, his friend, unite against Hero; when her father doubts her, when she is so bewildered by the accusation, Don John says of her actions:

"There is not chastity enough in language
Without offense to utter them. Thus, pretty lady,
I am sorry for thy much misgovernment."

"Pretty lady!" Even Iago had the grace to say "Do not weep, do not weep."

Iachimo comes next in order of development. His temperament is that of the genial liver. We find him first in a company of revelers talking and laughing. He is too much a man of the world to tell any one that he is a villain. He might be believed. He is the wily Italian who pretends to be what he is not and who keeps his thoughts to himself. His motive is a more definite one than that of Don John. He has resolved to win the wager. He seems to belong to that class of men which cannot allow a challenge to pass them. Three times Philario attempts to turn the conversation. He says very pointedly, "Gentlemen, enough of this: it came in too suddenly. Let it die as it was born." But Iachimo is determined. He resumes the conversation, taunts Posthumus and goads him on until in his weakness he yields.

While the first scene shows the obstinacy and perseverance of the man, the others show his wiliness and quickness. In dealing with Imogen how rapidly he judges her character from her appearance:

"If she be furnished with a mind so rare
She is alone the Arabian bird, and I
Have lost the wager. Boldness be my friend!
Arm me audacity, from head to foot."

He did not pray in vain. Boldness and audacity did clothe him as a garment, but even he must have felt the need of these natural and acquired traits when the straightforward Imogen said

" I pray you sir,
Deliver with more openness your answer
To my demand."

She does not understand his insinuations,

" Discover to me
What both you spur and stop "

When slander of her husband brings simply the dignified answer,

" My lord I fear has forgotten Britain,"

and gross flattery and insult to her are met with

" I do condemn mine ears that have
So long attended thee,"

how quickly he changes his course and makes the only excuse which could avail him,

" I have spoken this to know if your affiance
Were deeply rooted.

The love I bear him
Made me to fan you thus.

Pray your pardon."

Then immediately without any hint that it had entered his mind before, he requests the favor of sending to her for safe keeping during one night his

" plate of rare device and jewels
Of rich and exquisite form."

When he returns to Posthumus his evidence is arranged with the skill of a lawyer. Again his innuendos are met with plain questions to which he replies,

" Her bedchamber was hanged
With tapestry of silken silver
The chimney
Is south the chamber, and the chimney-piece
Chaste Dian, bathing."

When Posthumus in sarcasm exclaims

" Let it be granted you have seen all this (and praise
Be given to your remembrance) the description
Of what is in her chamber nothing saves
The wager you have laid."

He begs leave to air the stolen bracelet.

“She gave it me”

And said she prized it once.”

Last of all as a climax he tells of the personal mark. Portia could not have arranged the evidence in a stronger chain.

But wicked as Iachimo is, he can and does repent. The loss of physical strength leads him to think.

“The heaviness and guilt within my bosom
Take off my manhood; I have belied a lady,
The princess of this country.”

This is the first hint we have that he realized the harm that he had done to Imogen. His object was to get the better of Posthumus, and he had utterly ignored Imogen. Probably the low estimate in which he held all women diminished in his eyes the crime committed. But now he realizes his guilt and is glad to confess before the entire court “My heavy conscience sinks my knee.”

In Iago we have the disclosure of a perfect villain. His temperament like that of Iachimo is genial and pleasant. Every one likes him. Othello calls him “Honest Iago.” Desdemona appeals to him and Cassio addresses him as his friend and as “my good Iago.” Of his own character he says “I am not what I am,” and although he says it to Roderigo, in that case he tells the truth. His many soliloquies give us direct evidence as to his character and motive. They may be depended upon, for while Iago was a liar, it was to the people and for an object. He was not so weak mentally or so good morally as to wish to deceive himself. From his own lips we learn that his motive was twofold—disappointed ambition, the cause which he assigns to Roderigo, and mistrust of Othello and Emilia, the cause which he locks in his own heart. We must acknowledge that he had the stronger incentive, but he also had what Iachimo was spared, the sight of the suffering and agony of the woman whom he was injuring. He is unlike Iachimo again in the point that from the very beginning he realized the full enormity of his crime:

“Hell and night
Must bring this monstrous birth to the world’s light,”

And again

“So will I turn her virtue into pitch,
And out of her own goodness make the net
That shall enmesh them all.”

Here is no self-deception, no lack of comprehension of the atrocity of his actions.

In craftiness Iago is superior to Iachimo.

To separate by calumny a man and his wife when all Europe is between them was Iachimo's task. To separate the two who were hourly together, when one fair question and honest answer would wreck the entire plot, was Iago's harder problem. With such a work before him he needs and uses what Iachimo did not require, that is tools. Roderigo is flattered and led on by the skillful fanning of his unholy passion for Desdemona. For old friendship's sake Cassio is persuaded to drink and then to beseech the wife of his offended general to intercede for him. Emilia is the only one of the three whom Iago does not attempt to deceive. Possibly it was too much trouble, possibly it could not be done with her knowledge of him. He uses her to steal the handkerchief, but gives her no reason except "I have a use for it."

The conversation with Othello is far more crafty than that of Iachimo with Posthumus. He begins with insinuations about Cassio.

"For Michael Cassio,—

I dare be sworn I think that he is honest.

Men should be what they seem."

From him he creeps to Desdemona:

"She did deceive her father marrying you."

Then he touches lightly on that which must have been often in Othello's mind, the difference in race. With consummate art and boldness he dares to warn Othello:

"O beware, my lord, of jealousy ;

It is the green-eyed monster which doth mock

The meat it feeds on."

Later on he says

"My lord, I would I might entreat your honor

To scan this thing no farther,

Let me be thought too busy in my fears."

To these insinuations he adds the facts of the stolen handkerchief and Cassio's interview with Bianca.

Iago can not repent. It would be a moral impossibility for him to do so. He has deliberately planned evil, knowing its nature and its effects. He has chosen his path and he can not retrace his steps. His rage at his failure he keeps to himself. He will not cheer his enemies with the sight of his own grief. Above all he will not tell his motive:

"Demand me nothing ; what you know, you know ;

From this time forth I never will speak word."

ALGEBRA FOR COLLEGE PREPARATION.

OREN ROOT, PRATT PROFESSOR OF MATHEMATICS, HAMILTON COLLEGE.

So much has been said among academy and college teachers about deficient preparation for college in Latin and Greek, that deficiencies elsewhere have been somewhat slurred, if not altogether put out of mind.

It may be worth while to suggest some algebraic phases of "poor preparation."

There are, of course, poor mathematicians among applicants for admission to college; some weak in arithmetic or very uncertain in Geometry or half blind in Algebra; some poor all around. Against these, is a good proportion of bright scholars who have gone over the required ground well and are, in the main, ready for further work. Certain weaknesses, however, are very frequent and are often found in students otherwise well prepared. These can readily be removed in most cases by care in preparatory training.

Some faults manifest in algebraic training during the work of the last eight years are here noted:

(I.) Most students are lost in the reduction of complex expressions—especially complex fractions. Many who at once apply rules in simple cases, fail utterly when complicated forms are presented requiring successive operations. They seem to have gained no power to reduce, step by step, holding to some definite order. For example, a requirement to reduce to its simplest form:

$$\frac{\frac{1}{1-x} + \frac{1}{1+x}}{\frac{1}{x} + \frac{x}{1-x^2}}$$

seems utterly confusing.

Many who know how to do, are unable to carry forward the process correctly.

That facile command of such reductions be gained and held, long continued practice is needed. It is not necessary to hold classes on the chapter of the text which treats specifically of complex fractions; such forms should be introduced in examples all along the course and so the processes be made familiar.

(II.) Two weaknesses are noticeable in the handling of quadratics.

(1st) Many are puzzled by a quadratic equation where the coefficient of " x^2 " is other than unity. They halt between reduction to the normal form $x^2 \pm ax = \pm b$ and some of the methods for solving without such reduction.

In the writer's judgment, it is wise to drill students thoroughly and long in the solution of quadratics by the normal method, (making the coefficient of x^2 unity and completing the square), before introducing the devices by which certain cases may be simplified.

(2d.) Few students recognize practically the double sign showing the ambiguity in the extraction of an even root. In our Brockway Prize Examination for the current year—the competition being on the entrance examination—only one competitor gave to the square root the double sign.

In many of the problems of elementary algebra, as of the higher mathematics, only one root of the quadratic admits practical interpretation; and many students are satisfied in any case with one "answer." The theory of the double sign is stated, explained and probably understood in its specific place. But students do not realize that a quadratic *always* has two roots; that the double sign to an even root must always be recognized and that either leads to a competent result unless some condition of the case in hand excludes this value or that.

(III.) The majority of young men entering college are helpless before a radical equation unless time is given for repeated trials, and this gives solution in only a few cases.

The calculus of radicals is so important in connection with higher mathematics—even so much as enters into the *required* course of the college—that it is worthy special drill. This is especially true of radicals of the first degree which enter so constantly into the relations of trigonometric functions and the discussion of second degree equations in two variables.

In Goniometry and Analytical Geometry, the student should have as facile command of radicals as of the multiplication table in arithmetic. Classes in preparatory schools should be drilled upon the reduction of radicals and upon radical equations until this facility is obtained.

The points thus noted are the weaknesses of good scholars, but drill in them will vastly improve the mathematical power of the poorer mathematicians.

ON SUGGESTION AS A MEANS OF PUNISHMENT IN SCHOOL.

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There are brutal people who strike their horse, their dog, or their child in order to punish and correct them. In countries where slavery still exists, the slave is directed by blows with a stick, and in certain so-called civilized countries, the lash is still used in school and in the barracks.

Wherever corporal punishment is applied, it reveals a remnant of barbarism. Celebrated men have declared that without the whip nothing could have been done with them. In opposition to this limited number of people who, we believe, calumniate themselves, we might place the crowd of celebrated men who are of the contrary opinion. Those who make use of corporal punishment only as the last resource and not without repugnance. They regard it as a necessary evil, but in this they are wrong.

The teacher who strikes a pupil runs the double risk of seeing his dignity compromised and his authority despised; if he is irritated, he gives the child the deplorable spectacle of a man in anger; if he is calm, he plays an odious part in treating as a brute a being weak and defenceless.

Let us note in passing this singular anomaly of using a whip as a means of correction at a time when laws are passed for the protection of animals. Ought not the pupil to have a right to the protection accorded to the brute?

Let us add that corporal punishment is at the same time dangerous and inefficacious. Dangerous, because an irritated teacher does not measure the force of his blows; and sometime he may happen to pass the prudent limit and wound the child without wishing to do so. An instinctive movement on the part of the child to escape the threatened blow may cause a grave accident. Inefficacious, because the frightened child seeks rather to avoid the pain than to correct itself. It is the contrary of the end proposed; it is a proceeding anti-educational, if one may use the term. Perhaps we may succeed

* Translated from a communication by M. Felix Hement in the *Revue de l'Hypnotisme*, June, 1888.

in making the child finish his task, but we shall not have awakened in him lofty sentiments calculated to sustain him from evil through a horror of evil itself. In a word the moral sense will not have been developed. Like the criminal who fears only the officer of justice, whom remorse scarcely touches, and whose only care is not to be discovered, he will strive to escape punishment by dissimulation and lying.

Blows are not the only corporal punishment; there are certain deprivations not less brutal and dangerous, for example that of substantial food. To put a child on bread and water is often to compromise his health. At most he may be deprived of an unnecessary part of the repast, for instance of desert.

The deprivation of recreation or walking is also a corporal punishment. This means, in fact, far from being efficacious, acts contrary to the end proposed, for turbulence on the part of the child is most frequently a sign of a need of movement. Satisfy this need and you make it docile. If, on the contrary, you condemn it to inactivity, or to exercises which do not exhaust its activity, be assured that it will exhibit in class the activity it has not been permitted to exhibit outside. You will be able to punish but not correct it.

Supplementary work and tasks, while subjecting the child at the same time to worthless and disagreeable labor, cannot be considered as means of correction. They are rather the contrary, for they contribute towards giving a distaste for instruction, and causing an estrangement between teacher and pupil, to say nothing of the damage to health physical and moral.

How is the teacher then to act? We seem to disarm him completely before the rebellious pupil. As punishment we still have reproaches. "Reproaches?" someone will say, "why bad pupils laugh at them." I reply that they do not laugh less at other punishments and that you succeed in subduing without bettering them. I add, too, that most often teachers do not know how to make reproaches, that they set about it unskillfully, and that they do it with passion and without discretion. There is a way to reproach which might be called the *art of punishing*. It is not the multiplicity nor the severity of punishments which is of consequence in education. Bad teachers have very soon exhausted the series, however long it be, as well as reached the limits of severity.

We have to do with a being endowed with reason, who understands and comprehends us; why act with him as with an animal

which comprehends us only imperfectly and force him to accomplish labors of which he does not see the use, often contrary to his liking, at times contrary to his nature?

We have to form a character, develop an intelligence, refine sentiments. Let us then appeal to the reason, to the intelligence, to the will, to the sensibility. What advantage in having anything to do with a reasonable animal, if we do not make use of its reason? To treat a man like an animal is to deprive oneself of the valuable concurrence of his superior faculties in his education, and then, too, where they are most necessary.

Always, let us try to prevent rather than repress. This is the duty of the teacher. If the pupils are inattentive, that may be the result of many causes, and especially of the manner of teaching. One can often find teachers who possess knowledge, but one finds a much smaller number that know how to teach, that is to give instruction with order, clearness, and method; and still fewer who make the class interesting, animated, and alive. The one obtains attention, not by order, but by the charm and interest of the lessons; and this is the chief point. By force the other obtains silence, and a silent class is not always an attentive class.

It is not right either to exact from a child an amount of attention of which it is incapable, or impose upon it a work of long time, or to compel it to remain quiet for too long a period. Let us suit the work to its young organs like nourishment to a delicate stomach.

Make the class attractive, alternate skillfully the exercises of the body with those of the mind, proportion the length of the lesson to the age of the children; and you will lessen much the occasions to punish.

And now, as we can reduce all punishments to a single one—censure, let us see how we shall proceed in its application.

“The punishment ought to follow immediately the fault.”

“It ought to be suited to the age of the child, to its temperament, and more exactly, to its sensibility.”

“It ought to be certain, that is to say executed at the moment when it is resolved upon.”

If the child commits a slight fault, one should feign not to have seen it; the second time one should notice it, and the third time it will be needful to be severe. This is the first degree of punishment, and will suffice in general to make the child return to its duty, especially if it loves its teacher and is loved by him. We wish it to

feel a real pain at having offended its master and not fear the reprimand only. Punishment has thus a moral effect. In place of having recourse to punishments more and more rigorous which blunt the sensibility of the child, we should endeavor to do the contrary, that is to say, to quicken its sensibility, for it is not, as one is tempted to believe, the rigor of the punishment which constitutes its efficacy.

If the child has merited grave censure, let us guard ourselves against all passion. Not a bit of anger, at most a little coolness, or better still the afflicted air of a person resigned to fulfil a painful mission. The child is conducted to a reserved apartment, a work-room which is little familiar to it and dimly lighted. We make it sit facing us, cast upon it a penetrating look, and take it by the hands. We hold it captive under the action of our look, we speak with a gravity not exempt from disorder, slowly, in a monotone which generally renders it torpid and throws it into a light sleep which is to deep sleep what the twilight is to the day. Its will is then less firm and, as it were, vacillating, and it is without power to resist our action. When we have thus subdued it, we speak of the fault, we make it comprehend the inconveniences or the dangers of it. We inspire it with the fear that it will diminish the tenderness of its parents, the affection of its friends; that it will destroy the confidence and esteem which we had in it, and the sympathy which up to the present it deserved. Gradually we succeed in making it detest its fault, desire to have it pardoned, and resolve to combat its evil instincts. We insist, we hammer, so to speak, into its mind the resolution which we dictate and which it makes its own.

We have weakened for an instant its will in order to gain the mastery. Slowly and progressively, with entreaties sustained, touching and incisive, we have straightened what was tortuous in its judgment, just as the gardener does with the branches of the tree which he shows; just as the basket-maker does with the osier which he renders supple by the continued pressure of his agile fingers. Far from us the desire to substitute our will for that of the child, to diminish in it the sentiment of responsibility, in a word, to destroy its personality. We disarm the adversary, not to strike him down, but to render resistance impossible; yet it is for a very short time, the time to gain his confidence, and to lead him by persuasion to follow our counsels.

When his mind has received from us a definite impression, the shackles are removed, and the child becomes again free and better. But that is suggestion, one will say. No matter. It is suggestion in the first degree, that which every good teacher employs, just as M. Jourdain does prose.

COMMUNICATIONS.

To the Editor of THE ACADEMY:—

A paragraph is going the round of the newspapers, purporting to be a list of "words, phrases, and expressions to be avoided," and ascribed to the professor of English Literature at Wellesley College. I last saw it in the *Christian Union* of October 4, credited to the *Boston Transcript*. Among the phrases placed in this *Index Expurgatorius* is our old friend "had rather," and several others sanctioned by good usage. At the risk of performing a work of supererogation, may I be permitted to point out a few of these admissible expressions, together with an authority upon which each rests?

"Guess, for suppose or think." But the Imperial Dictionary has, as its fifth meaning under this verb, 'to think, to suppose, to imagine,' supported by two quotations from Shakespeare.

"Ride and drive, interchangeably (Americanism.)" The Imperial Dictionary, s. v. *ride*, second meaning, has 'to travel or be carried in a vehicle, as to ride in a carriage, wagon, or the like,' Macaulay being the authority; and under the intransitive verb *drive*, third meaning, has 'to go in a carriage, to travel in a vehicle drawn by horses or other animals.'

"Some ten days, for about ten days." Imp. Dict. s. v. *some*, fifth meaning: 'used before a word of number, with the sense of about or near.'

"Try an experiment, for make an experiment." Imp. Dict. s. v. *try*, tenth meaning: 'to essay, to attempt, to undertake,' on the authority of Milton.

"Had rather, for would rather; had better, for would better." Mätzner's *Englische Grammatik*, III. 7-8, where quotations are given from Goldsmith, Marlowe, Shakespeare, Milton, Cowper, and others, and where its ancestry is traced back to Middle English.

"Promise, for assure." Imp. Dict. s. v. *promise*: '*I promise you, I declare to you, I assure you,*' on the authority of Shakespeare.

"Try and do, for try to do; try and go, for try to go." Phil. Soc. Eng. Dict. s. v. *and*, tenth use; 'connecting two verbs the latter of which would logically be in the infinitive, *esp.* after *go, come, send, try*; familiarly and dialectally after various others.' This use is authorized by examples quoted from Milton, Johnson, Jevons, and others.

"Funny, for odd or unusual." Imp. Dict. s. v. *funny*, second meaning: 'causing surprise, strange, wonderful.' This, however, is noted as colloquial.

"Above, for foregoing, more than, or beyond." Phil. Soc. Eng. Dict. s. v. *above*, A. 4, C. 1, for the sense of 'foregoing'; B. 8, for the sense of 'more than'; B. 7, for the sense of 'beyond.'

"Somebody else's, for somebody's else." Oliphant's New English, II. 208: '*somebody else's* may be found in Dickens about 1840. I have myself noted it in Thackeray, but have misplaced the reference.

"Taste and smell of, when used transitively. Illustration: We take a dish which tastes of pepper." Imp. Dict. s. v. *taste*, v. i., first meaning, with quotations from Knolles and Milton.

"Healthy, for wholesome." Imp. Dict. s. v. *healthy*, second meaning: 'conducive to health, wholesome, salubrious,' with quotations from Locke.

"Just as soon, for just as lief." Imp. Dict. s. v. *soon*, fourth meaning, the quotation being from Addison: '*I would as soon see a river winding among woods or in meadows, as when it is tossed up in many whimsical figures at Versailles.*'

Is it not about time that those who assume to lay down the law for English should know the language they profess to teach?

Nov. 19, 1888.

ALBERT S. COOK,
University of California.

THE HOLIDAY CONFERENCE OF 1888.

According to vote at the conclusion of 1887, the Fourth Holiday Conference of the Associated Principals of New York State will be held at the Syracuse High School on Thursday and Friday, Dec. 27th and 28th. The session of Thursday will begin at 10 o'clock.

This association has already accomplished several important changes in educational conditions in this state, and is likely to take a chief part in others perhaps yet more important. Its composition is more nearly homogeneous than that of our other New York educational associations. The membership is not so large as to make an unwieldy body, but is large enough to give fresh inspiration to men who otherwise work without companions from September till June. Last year sixty members and over forty visitors were in attendance. Life, vigor, and the enthusiasm born of common pursuits and common interests have thus far characterized its meetings. There are no formal papers or addresses. Methods rather than theories are discussed, and under the five-minute rule remarks must be brief. Every principal of an academy or high school in the state ought to be enrolled among the "Associated Academic Principals." The terms of membership are shown by the following extracts from the constitution:—

"Any principal of a secondary school may become a member by the payment of an annual fee of fifty cents.

"Ex-principals who have been in service five years or more are eligible to membership."

Some of the topics already proposed for discussion at the next meeting are mentioned below. The executive committee will be glad to know of others that some principals would like to discuss or to hear discussed. Communications may be addressed to Geo. A. Bacon, Syracuse; or to C. T. R. Smith, Lansingburgh.

The Teaching of Natural History in New York schools.

The proposed Training Classes for Teachers—their Scope and Methods.

The Extent to which Arithmetic should be studied in Secondary Schools.

Requirements in English for Admission to College.

Ought the Regents to send a Visitant to each school annually, who should examine in Reading?

Shall sight-reading in Classics be required in the Regents examination?

Methods of Teaching Geometry.

There ought to be a largely increased attendance this year. It is good to know our comrades. It is good to get and to give hints of better ways of working. It is good to learn how others overcome the difficulties that we have fancied peculiar to ourselves. No principal can afford to be absent from what so many of his fellows regard as the heartiest, the happiest, and the most helpful teachers' convention of the year. Let every one arrange to spend the Thursday and Friday after Christmas in Syracuse. Let him urge his friends to go with him. Let him send in timely notice of topics that interest or perplex him, and we shall have a meeting that will effect much and open the way for much more.

Headquarters of the Association will be at the Empire House, where the Executive Committee will meet Wednesday evening, Dec. 26th, at 8 o'clock.

C. T. R. SMITH, President.

GEORGE A. BACON, Chairman of Ex. Com.

BOOKS RECEIVED.

Physical Laboratory Practice. By A. M. Worthington, A. M., late Assistant Master at Clifton College. Boston: Allyn & Bacon.

Perhaps in no department of secondary instruction has there been so radical a change in method as that which has taken place in physics during the last decade, and, although the change was a step in the right direction, it cannot be said here to have yielded such results as followed the introduction of the laboratory method in our colleges. The belief seems to have prevailed among our authors of text-books that a course of *quantitative* experiments, similar to those found in Pickering, Stewart, Gee and other manuals, could not be arranged for the secondary school. Mr. Worthington however, has given us a course of experiments in measurement which requires no expensive apparatus, is essentially quantitative in its character, and which is adapted to the mathematical knowledge and average ability of the pupils in our secondary schools. In so doing, he has enabled

every teacher of the subject to realize those results which have so long seemed just beyond our reach.

No teacher who has ever conducted a class of pupils through a course of quantitative experiments such as that found in this book will question its value. Neither will there remain in his pupils' minds a trace of doubt concerning the relative disciplinary value of qualitative and quantitative experiments.

Most of the apparatus required is "home made," but it is apparatus for measurement and not for illustration. The India rubber dynamometer described on p. 94 can be made by any boy in half an hour and will yield surprisingly accurate results. Moreover, by varying the size of the rubber, it can be adapted to the measurement of a wide range of forces. The spiral spring balance described on p. 141 has been used by pupils in one of our eastern academies to determine the specific gravity of solids and liquids and the results obtained were usually correct to the second decimal place. The simple Wheatstone's bridge and record, first described by Prof. Guthrie, is used and will enable the pupil to compare electrical resistances as accurately as the more expensive devices. The galvanometer described is accurate and efficient, but we do not see why the coil is not made circular and a shorter needle substituted for the long one used, thus giving it the advantage of a tangent galvanometer.

The experiments in heat are especially fine. A student will understand just what is meant by *latent heat* after he has determined its value as described and the numerous determinations of the specific heat of substances must leave him with fixed and definite ideas concerning both this important subject and the value of a heat unit.

A somewhat careful examination discovers very little to criticise in the first two hundred pages of the book. There are, doubtless, more experiments than most teachers would care to have performed, but this cannot be considered an objection. We believe, however, that the book would be improved if a portion of the experiments in static electricity were omitted and more importance given to the laws and measurement of currents; and that it is a mistake to omit entirely the subjects of sound and light. The experiments demonstrating the laws of mirrors and lenses, and measuring the rate of vibration of musical tones and the velocity of sound may be performed with simple apparatus and are as instructive and important as any in the book. It is to be hoped that in future editions these

features will be modified, but even if they are not, its value, not only as a text-book but also as a work of reference, remains.

A History of the United States and its People. For the use of schools. By Edward Eggleston. New York: D. Appleton and Company. 1888.

The publishers have given such surpassing beauty of form and finish to this history and Mr. Eggleston has told the story so entertainingly that it seems such a book as children rejoice to find among their treasures at Christmas time, rather than a school book to be opened as seldom as possible and gladly flung aside when vacation comes. From an artistic point of view the book marks the highest point yet reached by the text-book makers. The marginal illustrations of the men and life and customs of the times are not only attractive in themselves, but are arranged in such a way as really to illustrate the text. The paragraphs are not numbered and the subject of each is printed on the margin.

Instead of dealing with events in strictly chronological order, Mr. Eggleston treats of them in their logical relation of cause and effect. The divisions occur whenever he finishes some particular group of subjects related to each other and bearing upon one phase of the nation's growth and development. For instance, the second division is devoted to colonial life under separate chapters dealing with Indian life, early Indian wars, etc., etc.

Mr. Eggleston does not give the Declaration of Independence or the Constitution in full, but in the course of the history he brings out the substance of each with unusual clearness. There are questions for review at the end of each chapter, and various topical suggestions for recitation or essays. Dates are given sparingly, and the maps are, as he says, more numerous than the chapters. Special features are the table for the study of race elements, page 70, and the diagram of emigrations to America on account of religious persecutions.

Throughout the book Mr. Eggleston adheres to the motto which he gives in his preface, "The proper knowledge of mankind is man." (Let us hope he did not think he was quoting from Pope!) In following out this idea he has made what will seem to many more a book on manners and customs than a genuine history. The book indicates clearly what are the special things that have been favorite subjects of study with Mr. Eggleston, and the free introduction of so much outside matter will undoubtedly detract from the full value of the work as a text-book in history.

Progressive Music Lessons. A course of instruction prepared for public schools. Fifth Book. By George B. Loomis. New York and Chicago: Ivison, Blakeman and Co., Publishers.

The fifth book of Mr. Loomis's Series is a reasonably good collection of part songs for high school use. It is a neat, attractive volume of two hundred and forty-eight pages. The best feature is the number of adaptations from famous composers, which are well chosen and simply arranged. They might, however, well have been even more numerous, for the rest of the music is for the most part not better than the common-place sing song usually echoed from school room walls. The last seventy-three pages are made up of devotional songs and choruses, among which are two arrangements of Mendelssohn's Songs Without Words, and Himmel's Battle Prayer.

With the exception of a few choruses at the end of the book the songs are all arranged with only three parts, soprano, alto and a simple bass of easy range. This is an excellent idea, since few boys' voices are capable of taking tenor or low bass parts. The words are perhaps as a rule less characterless than those usually found in school song books. Still the book is not without such slovenly work as the following on page 3.

"Let's oftener talk of noble deeds and rarer of the bad ones,
And sing about our happy days, and none about the sad ones."

International Education Series. The Mind of the Child. Part I. *The Senses and the Will.* Observations concerning the mental development of the human being in the first years of life. By W. Preyer, Professor of Physiology in Jena. Translated from the original German, by H. W. Brown, Teacher in the State Normal School at Worcester, Mass. New York: D. Appleton & Company. 1888.

In his edition of Prof. Preyer's famous book Mr. Brown has far surpassed the ordinary translator both in the care which he has taken and in his appreciation of the original work with which he is dealing. The book itself is mainly a record of observations, minute and extended, with reference to the sense perceptions of very young children as well as of those of the inferior animals. The results of these observations are given in the minutest detail and extend even to matters apparently the most trivial. The science of modern pedagogy will in the future rest more and more on the results of such investigation and in his introduction to the American edition Prof. Stanley Hall praises none too highly the work of the translator's co-laborer, Mr. E. H. Russell, of the Worcester Normal School, who has been for several years engaged in similar work.

The present volume is certainly one of the most valuable that have appeared in the *International Education Series*, and should be carefully read by every teacher, young and old.

First German Reader on the Cumulative Method. By Adolphe Dreyspring, author of "The Cumulative Method," "The German Verb-Drill," "Easy Lessons in German," "Easy Lessons in French." New York: D. Appleton & Company. 1888.

All of Mr. Dreyspring's works so far have been excellent, and the present one merits no less praise than the best one of its predecessors. The mechanical execution of the book is perfect, and the work is admirably graded. The learner is constantly assisted by pictures which illustrate every page. The same characteristics which Mr. Dreyspring has introduced into the other books of his series appear in this. We shall look with interest for the succeeding numbers of the series.

Die Harzreise. Von Heinrich Heine. Edited by Alphonse N. Van Daell, Director of Modern Languages in the Boston High and Latin Schools. Boston: Published by Charles H. Kilborn. 1888.

We have already said elsewhere what we think of Mr. Kilborn's editions of French and German classics. Dr. Van Daell, the editor of the present book, both by his mental equipment and his experience as a teacher, is especially well fitted to edit a book of this kind. The notes are brief and simple, the work which he presents is well adapted for supplementary German reading, and the form and price of the edition is such as to promise for it a wide popularity.

The Civil Service Question Book. Containing Questions in Arithmetic, Geography, Book-Keeping, Letter Writing, English Syntax, United States History, and Civil Government, with Historical and other tables, and the Declaration of Independence and the Constitution of the United States: intended to be a sufficient review in all subjects upon which questions are asked in Civil Service Examinations. With full answers, and directions as to applications for examination and position. Syracuse, N. Y.: C. W. Bardeen, Publisher. 1888.

The Elements of Euclid. Books I.-VI. and part of Books XI. and XII. Newly translated from the Greek text with supplementary propositions, chapters on modern geometry and numerous exercises. For use in schools and colleges. By Horace Deighton, M. A., formerly Scholar of Queens' College, Cambridge. Head Master of Harrison College, Barbados. Cambridge: Deighton, Bell & Co. London: George Bell and Sons. 1886.

Academic Algebra. For the Use of Common and High Schools and Academies. With numerous examples. By Edward A. Bowser, LL. D., Professor of Mathematics and Engineering in Rutgers College. New York: D. Van Nostrand, Publisher, 23 Murray and 27 Warren Streets. 1888.

Outlines of Natural Philosophy. For Schools and General Readers. By J. D. Everett, D. C. L., F. R. S., Professor of Natural Philosophy in the Queen's College, Belfast; editor of "Deschanel's Natural Philosophy;" author of "Elementary Text-Book of Physics." Illustrated by 216 engravings on wood. New York: D. Appleton & Company. 1887.

College Algebra. For the Use of Academies, Colleges, and Scientific Schools. With numerous examples. By Edward A. Bowser, LL. D., Professor of Mathematics and Engineering in Rutgers College. New York: D. Van Nostrand, Publisher, 23 Murray and 27 Warren Streets. 1888.

Judith. An Old English Epic Fragment. Edited with introduction, translation, complete glossary, and various indexes by Albert S. Cook, Ph. D., (Jena) Professor of the English Language and Literature in the University of California. Boston: D. C. Heath & Co., Publishers. 1888.

A First Greek Writer with Exercises and Vocabularies. By A. Sidgwick, M. A., Fellow and Tutor of Corpus Christi College, Oxford, late Assistant Master at Rugby School, and Fellow of Trinity College, Cambridge. Third Edition, Revised. Boston: Allyn & Bacon, Publishers. 1886.

The Reading Circle Library. No. 7. *How to Teach Manners in the School-Room.* By Mrs. Julia M. Dewey, method and critic teacher in the public schools of Rutland, Vt.; formerly Supt. of Schools, Hoosic Falls, N. Y. New York and Chicago: E. L. Kellogg & Co. 1888.

Memory Systems New and Old. By A. E. Middleton, Author of "Memory Aids and How to Use Them," etc. First American Edition, Revised. Enlarged, with Bibliography of Mnemonics, 1325-1888. By G. S. Fellows, M. A. New York: G. S. Fellows & Co. 1888.

The Elements of Euclid. Books I. and II. Newly translated from the Greek text with supplementary propositions and numerous exercises. For use in schools. By Horace Deighton, M. A. Cambridge: Deighton, Bell & Co. London: George Bell & Sons. 1887.

Lamartine. *Selected Poems from Premières et Nouvelles Méditations.* Edited, with biographical sketch and notes, by George O. Curme, A. M., Professor of German and French, Cornell College, Mt. Vernon, Iowa. Boston: D. C. Heath & Co., Publishers. 1888.

The Social Influence of Christianity, with special reference to Contemporary Problems. By David J. Hill, LL. D., President of Bucknell University. The Newton Lectures for 1887. Boston: Silver, Burdett & Company, 50 Bromfield Street. 1888.

Colloquia Latina. Adapted to the Beginners' Books of Jones, Leighton, and Collar and Daniell. By Benjamin L. D'Ooge, M. A., Professor of Latin and Greek, Michigan State Normal School. Boston: D. C. Heath & Co., Publishers. 1888.

The Reading Circle Library. No. 6. *Talks on Psychology Applied to Teaching.* For Teachers and Normal Institutes. By A. S. Welch, LL. D., President Iowa Agricultural College, Ames, Iowa. New York and Chicago: E. L. Kellogg & Co. 1888.

A Common Sense Elementary Conversation Grammar of the German Language, with exercises, readings and conversations. By Dr. Oscar Weineck. New York: F. W. Christern, 254 Fifth Avenue. Boston: Carl Schönhof, 144 Tremont Street.

The Riverside Literature Series. *A-Hunting of the Deer and Other Essays*. By Charles Dudley Warner. Houghton, Mifflin and Company. Boston: 4 Park Street; New York: 11 East Seventeenth Street. The Riverside Press, Cambridge. 1888

Appletons' Mathematical Series. *Numbers Symbolized*. An Elementary Algebra. By David M. Sensenig, M. S., Professor of Mathematics, State Normal School, West Chester, Pa. New York, Boston and Chicago: D. Appleton & Company. 1888.

The Tenth and Twelfth Books of the Institutions of Quintilian. With explanatory notes. By Henry S. Frieze, Professor of Latin in the University of Michigan. New Edition. Revised and Improved. New York: D. Appleton & Company. 1888.

English Composition and Rhetoric. Enlarged Edition. Part Second. Emotional Qualities of Style. By Alexander Bain, LL. D., Emeritus Professor of Logic in the University of Aberdeen. New York: D. Appleton & Company. 1888.

Elements of Composition and Rhetoric. With Copious Exercises in both Criticism and Construction. By Virginia Waddy, Teacher of Rhetoric in the Richmond High School, Richmond, Va.; Everett Waddy, Publisher. 1888.

Exercises in English: Accidence, Syntax, and Style. Carefully selected and classified for criticism or correction. By H. I. Strang, B. A., Head Master, Goderich High School, Ontario. Boston: D. C. Heath & Co., Publishers. 1888.

Introductory Lessons in English Grammar for use in lower grammar classes. By Wm. H. Maxwell, M. A., Ph. D., Superintendent of Public Instruction, Brooklyn, N. Y. A. S. Barnes & Company. New York and Chicago. 1888.

Parallel Edition of the Classics. *The First Four Books of Caesar's Commentaries on the Gallic War*. Consisting of the original and translation arranged on opposite pages. New York: A. Lovell & Company. 1888.

Heath's German Series. *Goethe's Torquato Tasso*. Edited for the use of students, by Calvin Thomas, Prof. of Germanic Languages and Literatures in the University of Michigan. Boston: D. C. Heath & Co. 1888.

International Education Series. *Memory, What it is and How to Improve It*. By David Kay, F. R. G. S., Author of "Education and Educators," etc. New York: D. Appleton and Company. 1888.

Brief Views of United States History. For the Use of High Schools and Academies. By Anna M. Juliland, Principal of High School, Whitehall, N. Y. Syracuse, N. Y.: C. W. Bardeen, Publisher. 1888.

A Primer of Memory Gems. Designed especially for schools. By George Washington Hoss, A. M., LL. D. Third Edition. Revised and enlarged. Syracuse, N. Y.: C. W. Bardeen, Publisher. 1888.

Inductive Language Lessons, Elementary Grammar and Composition, with a new, simple and effective system of diagraming. By Harris R. Greene, A. M. New York: A. Lovell & Company. 1888.

THE ACADEMY:

A JOURNAL OF SECONDARY EDUCATION

DEVOTED TO THE INTERESTS OF HIGH SCHOOLS ACADEMIES AND
ACADEMIC DEPARTMENTS

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NO. 10

*MORAL TRAINING IN THE PUBLIC SCHOOLS.**

One year ago this committee presented as its report a brief review of progress in grammar school education within the Commonwealth. In the course of the report, under the head of discipline, there occurred the following passage :

“Few features of education show greater contrasts, when the old is compared with the new, than the aims and methods of school discipline ; and this appears to be true when we look at the subject from the eyes of the grammar school teacher, as well as in lower or higher grades.

“The aim of the modern teacher is no longer simply to “keep school” and be “master.” This he does not neglect; but he secures it by aiming at a higher object, nothing less than the right moral training of the individual pupils. The methods he uses are no longer sternness and the rod chiefly, though these he claims and exerts the right to employ in obstinate cases, but various combinations of example and advice, gentleness and firmness, persuasion and command, formal instruction and incidental conversation,—all applied with skilled judgment, tact and patience unbounded. He studies the boys and girls more than they their books, and sways them by the tone of the school more than by direct assertion and iteration. And the results are in the main satisfactory.”

* Fourth Annual Report of the Committee on Educational Progress. Presented to the Massachusetts Teachers' Association at Boston, December 1, 1888.

A month later, when the report had been printed and distributed, among the acknowledgments received was one which contained, with other comments, this criticism :

"I regret that I cannot agree with much that is in the report, and that its generally optimistic tone is in the way of improvements much to be desired in grammar schools. The very most important point of all,—moral training,—is but slightly touched upon, while, in my opinion, based upon observation and experience, it is a part of grammar school training so much neglected as to call for the most explicit treatment in a report like yours."

A subsequent letter from the same writer, whose name if mentioned here would command universal respect, gave evidence of deep concern for the neglect of moral training which he believed to exist in all grades of our schools. Similar views have been expressed in other quarters, sometimes with great earnestness. It is evident that there is a portion of the community which, to put the case mildly, has some fear that the public schools are not doing their duty to the children in the matter of morals.

It has seemed best to your committee, therefore, in the present report to treat with some fullness the broad question of moral training in the public schools. We shall consider *a priori* what phases of moral culture seem to lie within the province of school-life, and on what principles training in morals must be based. Then we shall present evidence tending to show the aims, the methods, and the observed results of such moral training as now is found in the public schools of this Commonwealth.

THE POSSIBILITIES OF SCHOOL-LIFE.*

The first requirement in the school-room is obedience, ready and complete, for without this there can be no successful management. It is evident that this is a discipline having abundant application elsewhere,—towards parents, towards employers and their agents, towards the government and all properly constituted authorities, and towards the divine will itself, however revealed. We may be sure, then, that in holding our pupils to obedience we are laying a good foundation for moral growth. Moreover the pupil is compelled to be punctual. Sleep, sluggish feelings, play, business,—all must give

* Based upon a paper by Wm. T. Harris, LL. D., before the American Institute of Instruction in 1884.

way that he may be in school on time. Once there he must be regular in habits till school is ended. Lessons must be ready at the hour of recitation; he must rise at the signal, move in line, and in all respects observe a required order. Upon these two habits, punctuality and regularity, all management of machinery must depend, and, in fact, all forms of occupation that involve combination of effort. Then from the school the pupil obtains the discipline of silence, "the soil in which thought grows." He is led to restrain his natural impulse to prate and chatter, an inheritance from his animal nature, not only that he may cease to hinder the work of others, but still more that he may the more readily concentrate his own feeble and diffused efforts. These four mechanical duties of the school-room,—obedience, punctuality, regularity and silence,—form an elementary training in morals without which it is exceedingly difficult to advance to ripe moral character; for morality must begin in mechanical obedience and by insensible degrees develop into personal responsibility.

Of the higher moral duties, there are some that relate mainly to the individual himself. The school teaches cleanliness, neatness in person and in clothing, temperance, and moderation in the gratification of the animal appetites; though its opportunities for enforcing the latter are slight. On the other hand, it has powerful resources for leading the pupils to what the ancients termed prudence. To us the idea is better known on its intellectual side as self-culture, and on its practical side as industry. For instance, what better method can be devised to train boys and girls in industrious habits than the school method of requiring work in definite amounts and at definite times and of an approved quality?

There are duties also that relate mainly to others. One of these we may term courtesy, including politeness, modesty, respect for public opinion, liberality and magnanimity. This may be effectually taught and trained in the school-room, but never, it is plain, by a teacher who is sour and surly, petulant and fault-finding. Another such duty is justice,—the highest of the secular virtues,—a much-embracing duty. It includes honesty, fair dealing with others, respect for their property, their rights and their reputation; it includes also the telling of the truth. On this point the school can be very effective. Every lesson is an exercise in searching out and defining the truth. But a teacher's carelessness may suffer weeds of deceit and open lying to grow up in the fairest child garden; the

dishonest pupil may be suffered to pluck the fruits which belong only to honesty and truth; and so the school may teach immorality, instead of virtue. Eternal vigilance is the price not only of liberty, but of moral advancement as well. A third duty in this altruistic division is respect for law as the only means of protecting the innocent and punishing the guilty. In the cultivation of this duty a few years have made a great change. In our best schools punishment through the sense of honor has largely superseded the use of the rod. It is easy now to find schools admirably disciplined, with their pupils enthusiastic and law abiding,—governed entirely without corporal punishment. On the other hand, when governed by an arbitrary and passionate teacher, the school is a terribly demoralizing agency in a community. By it the law abiding virtue is weakened and the whole train of the lesser virtues is routed by the selfish instincts summoned to the front.

Shall we go too far if we name one more group of virtues as properly within the domain of the public school? It is our profound conviction that there may be diffused in the school by teachers of the requisite qualifications valuable features of the "celestial virtues," faith, hope, and charity; of faith, a belief in the theory of the universe which Christianity teaches; of hope, its practical aspect, the expectation that the destiny of the world is in accord with this theory, and consequent action; of charity, the greatest of the three, unselfish devotion to the welfare of others. Yet certain it is, that these traits can be taught by no teachers save those who themselves are under their inspiration. This fountain cannot rise higher than its source.

PRINCIPLES OF MORAL TRAINING.*

Thus we have sketched the possible moral outcome of public school life. Let us next review some of the principles which underlie all moral education.

There seem to be four elements in effective moral training.

The first is *knowledge*. The child must be led to see what his duty is, and often why it is his duty. Thus only can he learn to see a moral quality in his own acts, and to follow right principles. The

* This portion of the report, as well as the closing page, is essentially taken from a paper by the chairman of the committee, printed in THE ACADEMY for February, 1883.

daily reading in a reverent manner of appropriate selections from the Bible, as required by the law of the Commonwealth, supplies an excellent background of knowledge, while cool unimpassioned conversation on the occasion of some special demand for action completes the work. For this purpose the numerous "cases of discipline" furnish precisely the occasions needed. Every one of them is an opportunity for the training of character, and only by so regarding and so using them, can the teacher or the scholar find in them any sort of satisfaction; but when so used they often become turning points in the lives of the disciplined. Let us recall our own school days. Our moral views in those old times were not of the clearest; inexperience, prejudice or passion not seldom made the false seem true and the worse appear the better reason. Yet some of us can remember a day when by an apt presentation of the truth we were led to see with a clearer vision, and to discern beauty where before we had beheld naught but the beast. This done, a long first step was taken toward right action.

The second element in moral advancement is right motives. The choices of the will depend upon the emotions. The immediate occasion of each volition is an impulse to act springing from some desire. The character of the desire determines the character of the act of willing; the intensity of the desire will affect the energy of the will. Hence one who would train another morally should so surround him that right and wise desires may be suggested to his emotional nature, and lead up to right and wise exercise of the will. What rich opportunities for this are offered in the little autocracy we call a school, has already been shown. Regularity and novelty in due proportion, occupation and relaxation by turns, cheerfulness and sober earnestness, all have their place in gentle compulsion, associating pleasurable emotions with right doing, and stimulating the desire to act as duty demands.

Third among the requisites for moral growth is the opportunity for choice. The will, like the intellect and the emotions, must get its growth by action. If in our own youth we had little freedom of choice, there came a period when we were conscious of a tendency to indecision, a weakness of the will, that was by no means a help to virtue. A man of character must have a strong will as well as one rightly directed. Our teachers were wise, then, if they left open before us more ways than one, blocking our path, indeed, when we

unwittingly went wrong, and resolutely compelling us to retrace our steps when we had deliberately chosen an evil course.

In the fourth place, there should be continued practice until habit is set up. Is it not true that good instruction alone is impotent to form or reform character? Example, powerful as it is, avails only when seen or distinctly remembered,—and not always then. A few right choices occasioned by the mastery of right impulses will not suffice. The right exercise of the will must be continuous, without serious interruption, and progressive, from the easy to the more difficult, until by habit the choice turns “as the needle to the pole,” to the deliverance of conscience and sound reason. Then we have the man of principle. He is not the sport of whims or the victim of passionate storms, but is master of himself.

“ And blest are those
Whose blood and judgment are so well commingled
That they are not a pipe for fortune’s finger
To sound what stop she please. Give me that man
That is not passion’s slave, and I will wear him
In my heart’s core, ay, in my heart of heart.”

It appears, then, that within the limitations of the public school there are noble opportunities to teach and to enforce morality. It also seems true that the laws of ethical development can successfully be followed by the teacher in the management of his pupils.

THE ACTUAL SITUATION.

It becomes, next, of much importance to ascertain what is actually done in the public schools of the Commonwealth in this respect of moral training. But this is no easy task. Any adequate examination of the situation would involve the personal visitation of a large number of schools, while in session, by competent inspectors who had previously fixed upon the definitions of the principal terms in the vocabulary of morals, and had marked out in concert well defined lines of investigation. Nothing of the sort has, of course, been attempted by this committee. On the other hand, our personal acquaintance with the moral aims and results of other schools than those in our immediate vicinity was too meagre to warrant making it our sole reliance for information. We have turned, therefore, to the resort of previous years,—correspondence with teachers, school superintendents, and others whom we supposed to have knowledge

of the facts in the case with respect to their own vicinity. Our requests received a cordial reception, and answers came from upwards of a hundred and fifty writers, to all of whom the committee feels indebted and desires to express earnest thanks.

Each correspondent was asked to give brief answers to three questions. Those relating to high schools are here quoted; those concerning primary schools were nearly identical.

QUESTIONS.

1. Do the teachers of the High School in your town (or city) in the discipline of their pupils aim directly at moral training?
2. What means of moral growth, or of discipline, are employed in the school?
3. What moral results are discernible as the pupils pass through the school?

The conclusions we have reached with reference to primary schools are based upon replies received from forty-four persons in twenty-six cities and towns. Our opinions concerning grammar schools are grounded not upon correspondence but upon the experience and observation of the members of the committee. The replies relating to high schools came from one hundred and twenty persons in eighty-three cities and towns, and were written by three classes of observers. A part of these were principals of high schools having more than fifty pupils; another part superintendents of schools in cities and towns having high schools; the remainder were persons—chiefly clergymen—having no official connection with the public schools, but known to be intelligent observers of the social conditions about them.

While disclaiming any thought that we have attained perfection in our information, or infallibility in our judgment, we submit that our range of investigation has not been narrow, and that merely personal opinion has been to a high degree eliminated. Our conclusions are offered, not at all as the last word to be said upon the question, but as a fresh contribution to heighten the interest in the discussion.

THE PRIMARY SCHOOLS.

In answer to the first question, whether the teachers of primary schools aim directly at moral training, about one-third of the letters are in the affirmative without qualification. A smaller number add "hope so", "think so", or "to a degree." One says, "Theoretically yes,—but, practically, no thoroughly decisive method is pur-

sued. Teachers are told to do this good work, and there it is left." Another remarks "Our teachers are instructed to teach in accordance with Sec. 15, Chap. 44, Public Statutes, a copy of which, printed in large type, is placed on the walls of every school room." Still again we read: "The mechanical duties are enjoined in all our schools and the pupils are constantly under tuition in truthfulness, honesty, justice, etc.," and also this, "The direct aim of all our schools in matters of discipline is moral teaching."

The impression left upon the committee, as you may readily believe, is that the aim of primary teachers is generally and positively in the direction of moral advancement, but that a minority of them need to be held more rigidly to this phase of the school-work.

The second question, referring to means employed to secure moral growth, received more numerous answers. One-fourth mention as the main reliance direct oral lessons or formal and special talks on morals and manners, with verses, maxims, fables, anecdotes and incidents, by which are illustrated and enforced the beauty of frankness in all dealings, the ugliness of insincerity and all forms of vice, the wisdom of good conduct and the duty of respecting the rights of others. On the other hand a somewhat larger number rely mainly on indirect lessons in connection with ordinary incidents in daily life, in work, or in play, in school, on the street, and at home. About three-fourths of the letters indicate the combined use of both the foregoing plans. Not far from one-fourth speak positively of the teacher's example, the personal influence of the conscientious teacher, and her force of character in winning the children to her. In particular one city is thus reported: "Our teachers are, for the most part, women of very superior culture and strength of character, —their personal influence is in my judgment the most effective means of moral training." Another also adduces as the chief means "the personal influence of our teachers, who are chosen with a view to moral power and character." In one city, besides the foregoing means, there is mentioned that of marshalling the little ones into "Try Companies" and "Courteous Bands." Here also some teachers allow a minute at the beginning of each daily session for a silent resolution, and a minute at the close of the session for recalling wherein a failure of a resolution has occurred. Three cities and one town report the addition of mild means of punishment to the other methods employed; of course these are not all in which punishment prevails, but most of the writers seem not to have classed it

among means of moral growth. (If it is not this, why use it at all?) Several speak of the importance of keeping children busy and contented in school. More than half report that special provision is made in their regular course of study for instruction and training in morals and manners.

Thus it appears that the personal character of the teacher is regarded by a considerable number as the best means of moral culture in the pupil. This seems to your committee an intensely vital element in the case. When the appointing powers of any community shall act upon this conviction, a new era will begin with respect to the inner life of children in the schools. Direct talks and lessons, and indirect and incidental instruction as occasion offers, both have their uses; but neither is really efficacious if obstructed and nullified by a harmful, or even colorless, personal influence at the desk. A positive woman, with convictions that are right, and a hearty personal interest in the children, will find means to train them in virtue and to repress the evil traits which manifest themselves. In the hands of such the vexed question of corporal punishment will have judicious treatment and find a rational use.

The third question had reference to the discernible results of moral training in the schools. Here the reports were naturally various, but with few exceptions cheering and hopeful. A few mention "no apparently decided results," or "results not so apparent as should be desired, owing mainly to the immaturity of the pupils and the brief time they are in the primary course." One city reports flatly—"There is not enough moral training in our schools. We need waking up in this matter."

On the other hand, there are numerous replies like the following: "Our pupils are well-behaved, they are generally courteous, and as they pass out into life they show that the school has helped them in fixing habits of industry, punctuality, and good order, with a love for temperance and the greater virtues which fit them to be good citizens." "Amelioration of manners, growing habit of truth-telling, honesty and fidelity in school-work and in general conduct." "In pupils' courteous demeanor, regard for other's rights, their truthfulness and sense of honor." "Less slovenliness, profanity, roughness and uncouthness, more thoughtful attention to work and duty." "Pupils obliging, more conscientious, with a disposition to be just." "Children apparently advanced in conscientiousness, willing obedience, and sensitiveness to wrong doing." "Greater self-respect, in-

creased care in deportment on street and about the school grounds."

"They acquire habits of neatness, of punctuality, of obedience, of politeness. They learn to distinguish different forms of good and evil, and as a rule prefer the good. These facts are discernible in the school-room, on the play-ground, and on the street." "The virtues are strengthened in their hold upon the character, and the vices are regarded with disapprobation by the better portion of the pupils. Even by those who practice them, they are considered something disgraceful, which must be concealed as far as possible." "Pupils love the truth. The habits they form of performing moral acts strengthen their moral character."

These ten quotations show the spirit of nearly all the writers. Unless this evidence is to be discredited—and the writers are men skilled in the very work of determining the results of school-life—your committee must believe that the aims and the means employed in primary school instruction do result in positive and valuable moral improvement on the part of the pupils. That this process goes on unequally in different communities, in different schools in the same locality, and with different pupils in the same school, is quite certain. The general tendency is nevertheless upward rather than downward.

The school is not the only power at work upon the moral nature of the children. The home influence, which should ever be uplifting, is often antagonistic to the moral teaching of the school. The street is often worse and more powerful in its molding influence than either home or school. Listen to one more excerpt: "If I could cleanse the shops of cigarettes, forbid any boy under sixteen from smoking, put the —— (naming a vicious sheet) out of the shop windows and into the list of proscribed literature, and arrest all boys under twelve found without a guardian on the streets after nightfall, I should feel that our innoculation with morals in the schools might diminish the pestilence that is robbing us of a pure and uncorrupt generation of youth." All this, however, is not within our province. We can simply administer well the agencies that belong to the school-room, leaving the rest to other branches of civic and social effort.

THE GRAMMAR SCHOOLS.

As pupils advance in years, the results of moral instruction are less immediately apparent than those of intellectual training. Intellectual development shows itself in increased capacity and grasp of

the mind; moral training has its results in character and life. While the impressibility of the mind in early childhood is more favorable for moral culture, which is then secured largely by giving attention to the feelings and to habits of right doing, the period usually covered by grammar school instruction, say, from the age of ten to that of fifteen years, requires a different course of management; and the results of such moral culture are not fully realized until after the pupil has passed from the immediate sphere of the teacher's influence. Time is necessary for the formation of character, and for the realization of its legitimate fruits. During the grammar school period the intellect begins to develop with a rapidity and a craving for action very gratifying to most teachers; and the moral nature, equally rapid, perhaps, in its development, is frequently characterized by a sort of eccentricity and a restlessness under restraint, often entirely misinterpreted by teachers. It by no means follows that this state of things is to be taken as evidence of budding perversity on the part of the pupil; but it rather suggests that the changed conditions of the pupil require a different and a more considerate course of treatment. To many teachers this is a critical period in their career. Those who, after experience in primary school teaching and government, have advanced to the work of the grammar school grades, know best how to appreciate the greater requirements made upon their resources for the training of pupils of those grades. A proper understanding of these facts, and of the principles, underlying them, is necessary to form a correct judgment of the progress made in moral instruction in the schools, and of the present condition of that work.

There is good ground for considerable satisfaction and much hope in the present status of moral instruction in the grammar schools of the Commonwealth. In support of this view, we call attention to the following considerations:

1. There is a widely pervading interest in this subject, and a spirit of earnest inquiry as to the best methods of procedure, among school workers in this department of labor. Dissatisfaction with the results of past methods, and with the character of some of those methods, has led to a careful study of the psychological principles of moral culture, which is bearing fruit in more rational and more successful work.

2. There is encouragement in the kind of means employed for moral instruction. The repressive methods formerly so much used,

which led to the government of the school by main strength, have, in a large measure, given way to gentle means, whose aim is to lead pupils to control themselves. Corporal punishment year by year is everywhere less resorted to, and in many of the best schools is not resorted to at all. If a census of opinion upon the subject could be taken in the most progressive schools, it would be found that while a majority of good teachers might favor the retention of corporal punishment upon the statute book, as allowable in extreme cases, and as a last resort, the prevailing sentiment would be very largely in favor of its disuse; and that the teacher who makes *frequent* use of it must, on the whole, be regarded as weak in discipline.

There has been a very general disappearance of those petty punishments and indignities, to which transgressors in small things were too often subjected; such as being compelled to assume a bent over posture of the body in the presence of the school; holding a heavy book or other weight in the extended hand; and having the jaws propped open by a stick;—methods which were only exasperating to pupils and made no appeal to their better nature. A more careful study of the child mind, more rational views of corrective measures for the misdemeanors of pupils, and especially of the desirability of preventing rather than punishing such misdemeanors, and a constant appeal to the moral sentiments, are fast supplanting the objectionable methods alluded to above, and are placing moral training upon a plane more rational and humane. This is evidence of good work,—of improved work.

3. Those teachers who are conscious of doing better work in moral instruction, are by no means satisfied with present attainments in that work. Having a better understanding of what moral culture and character building really mean, and appreciating the possibilities of that line of work, they are not only anxious, but determined, to extend and improve that most important feature of school work. This in the hands of prudent teachers means progress.

4. The scope of school discipline is becoming broader and deeper. At one period it too often meant little more than preserving good order—"making the pupil mind." Its work now means greater attention to the development and molding of character; to the proper cultivation of the moral sentiments; and to the careful training of pupils in those many habits exhibited in every day life, such as industry, fidelity, punctuality, truthfulness and honesty, civility and politeness to all, respect for the rights of others, magnanimity,

unselfishness, deference to the aged, and such other traits as go to make up a well rounded character.

5. The condition of moral instruction, as outlined above, is largely recognized by the thinking and considerate public, and is giving to teachers a better co-operation of parents and others in their work. There are few people past middle life who do not remember how frequent in their school days were those cases of difficulty between teacher and pupil, which brought bitter complaints from parents, and which often required for their settlement the interference of the school authorities and of the courts. This is now greatly changed.

In well ordered schools few children ever hear of accusations of this kind. There are many cities and towns in Massachusetts where serious complaints from parent to the school authorities, about the objectionable discipline of their pupils, do not average one case per year for each thousand pupils in the schools.

6. Teachers are more generally giving their assent to the maxim often uttered, "as the teacher, so the school;" which means that they themselves are the greatest agency, and greater than all other agencies, for good in the school room; and that their best work is not done by programmes, nor by technical didactics, but by virtue of personal character, by the daily bearing and spirit exhibited in and out of the school room, by that silent and unconscious tuition, so undefinable, and yet so potent for the uplifting of moral character wherever its influence extends.

THE HIGH SCHOOLS.

It is in an important period of transition that the high school has its pupils,—of transition from childhood with its manifold confused beginnings to manhood and womanhood with their self contained strength and orderly action. The lad is not now so plastic in nature as once he was, nor is his heart a white page devoid of lettering; but he is capable of untold growth and is subject to the molding of a right-hearted, strong-willed teacher in ways that take hold on eternal life. The moral interests of his future are undoubtedly the largest that now affect him. His mathematics and his Latin will fade, the intellectual strength to which they have helped him may grow dim by perverted use, but the moral habits and the aptitudes of soul that he forms in these years will go far to determine his human destiny. Hence in addition to the strictly intellectual work of the high

school,—the acquisition and organization of knowledge, and the development of the faculties of the mind,—the citizens who maintain this institution have a right to expect from it a service upon the moral side. And this service should be both positive and productive of appreciable results. Are the high schools of Massachusetts fairly meeting this demand?

As evidence upon this point we adduce a summary of our correspondence with a hundred and twenty intelligent observers representing all parts of the state.

Our questions, as will doubtless be recalled, bore upon the direct aim of high school teachers, the means employed for moral training, and the results discerned. The answers related to eighty-three cities and towns, in some of which two or more high schools exist.

The mass of the testimony is given by the teachers of the schools themselves.

To the question, "Do the teachers in the high school in your city (or town) in the discipline of their pupils aim directly at moral training?" fifty-five answer yes, thirteen answer no, and the answers of eight are indecisive. A close examination of the letters of those who begin with a negative answer, however, shows that in the case of five there is manifested a positive aim at moral training but without formal lessons on morals. These last five had simply misunderstood the question. The case is, then, that 79 per cent of these teachers declare or show that they are directly aiming at the moral training of their pupils. The remainder are satisfied with the general effect upon character of orderly school work in merely intellectual lines.

The second question was, "What means of moral growth, or of discipline, are employed in this school?"

The replies received were exceedingly interesting. The means employed are very numerous but are capable of rough classification under seven heads, viz.:

1. The regular routine of the intellectual work in school. The frequent allusions to this as a powerful means of securing right conduct, together with the fact that nearly a dozen schools have few means besides, confirms our previously expressed opinion of its value. Even where no direct moral aim is acknowledged by the teacher, moral growth is said to be perceptible as the pupils pass through the school. "The direct tendency of mental culture," says Professor

Payne, "is to weaken the empire of the passions and emotions ; consequently mental culture is at the same time moral culture."

2. There are some of the subjects studied which present fine opportunities for comparisons and discussions on moral questions. These opportunities are gladly seized and turned to account by numerous teachers. The following subjects are named as useful in this respect, and are given in the order of frequency of mention : history, literature, civil government, political economy, geometry, science and singing. The very unexpectedness of any moral lesson which is wrought out, or flashes out, in this incidental way, deepens the effect of it upon the young mind. It is evident that much good can be done by a judicious teacher by these means, and also that here, as elsewhere, it is easy for one who lacks good sense and tact to do more harm than good.

3. Public exercises with a moral purpose are frequently mentioned. The daily reading of the bible, without note or comment, is thought by many to impress a high standard of morality upon the unconscious memory of the hearers, which is called into service by subsequent occasions. Extemporaneous prayer and the repetition of the Lord's prayer are mentioned by some as deepening that impression. In connection with these devotional exercises, short talks to the assembled school, or room-full, upon incidents of recent occurrence are found very helpful. A very small number seem to give formal lessons on morals and manners, and about as many retain moral philosophy, under some name or other, in their courses of study. The learning and recitation of "memory gems," carefully selected, are thought by some to be useful. In one large school general exercises are held twice a week which include the reading of some distinctively moral passages from standard authors as well as from the bible and the singing of appropriate selections.

4. The great majority, including many who use some form of public exercise, place more reliance still upon private talks with individuals on special occasions. In these the teachers aim to get at the real moral state of the boy or girl and to lead the pupil to a higher plane, encouraging any tendency to better courses that exist, and by gentle persuasion, or stern justice, or vigorous reproof, putting away the evil. The first thing is to learn the pupil, the next to adapt the treatment to his needs. Here come into play all the firmness, patience, tact and affection of which the teacher is capable. The young people often have moral views by no means clear or just.

It is then the teacher's privilege to clarify the vision and arouse enthusiasm for what is true and noble. Rightly says one correspondent, "The more individual cases we can find and meet in our teaching, just so much more success, true success, shall we attain."

5. It follows naturally that if we are to learn the pupil we must study him not only at school but also at home. There we shall find another set of surroundings which color his emotions and influence his motives. There too teachers are coming to seek and obtain hearty co-operation from parents in their efforts at moral improvement with the children. This interchange of counsel, so mutually helpful, finds mention occasionally in the letters we have received, and is a mark of genuine progress.

6. The letters very generally show that pains is taken to cultivate directly and indirectly a high moral tone in the schools. Good intention is taken for granted until respect is forfeited. Appeals are made to honor and duty. Offences are shown to have effects upon the school, and not upon the teachers alone. Fairness is dealt out to the pupils; mistakes made by the teachers are "owned up," not concealed or ignored. Some teachers prefer to have rules formulated and the reasons for them explained to the pupils; others have no rules, but correct all deviations from conduct appropriate for self-respecting young men and young women. Self-government is the goal toward which the pupils are led by a variety of roads.

7. Again and again the principals of the high schools state that the personal character and example of the teachers themselves are the means most powerful in producing moral advancement in school children. It is these which direct and energize all other means, or fail to do this. It is a matter about which modesty evidently checked the flow of many a pen, but on this point we feel no doubt. Says one, "First and foremost is example, the life of the teacher before her pupils, 'known and read of all men.'" Writes another, "The most potent means of moral training is the influence and life of the teacher himself. A teacher who is a teacher, who is himself going upward,—looking 'forward and not back,'—will of necessity lead his pupils upward. He becomes an inspiration."

Our third question was, "What moral results are discernible as the pupils pass through the school?" It was here that the greatest difficulty was encountered by those who desired to be of service to us. Nothing is more intangible than moral results. It is exceedingly difficult, moreover, to discern what part in moral advancement one

agency plays when three or four others are at work in the same field. Who can tell how much the school, the home, the church, and society have severally done to produce from the hoydenish, careless girl of fourteen the lovely, self sacrificing, Christian young woman who bears her diploma from the school door?

There is universal testimony that senior classes in the high schools show a positive moral advance as compared with the entering class. The young people grow more thoughtful, conscientious, and trustworthy. "They are keyed up to a higher moral tone." They accept responsibility, recognize and respond to duty, are less selfish, and more devoted to the right because it is right. To quote from one, "In our upper classes there is less lying, less flirtation and a general gain in manliness and self-respect." Another letter is full of particular instances: "I have seen a dirty, dishonest boy from the very slums (I have visited his home when he was fever tossed and the filth was indescribable) grow cleaner and better till at the end we passed him clothed and in his right mind to the Technical School. I have seen vain, frivolous, showy girls, under a careful teacher's watchfulness, transformed into thoughtful, conscientious young women, now excellent wives and mothers. A boy whose word I could not believe at the end of his second year, I recently became security for, on his taking a place of trust. C—— I—— comes from an apology for a home. Her mother sells rum illicitly and the day before she is to be graduated with honors, she has to go to the police court to testify against her mother. Yet under the constant care of a vigilant, prayerful instructor, this girl will make a successful teacher."

There are some things to be said on the other hand also. One teacher is sorry to say that the moral results of his school are unsatisfactory, because not permanent. Pupils graduate in very good condition, but in a few years are reckless, thoughtless or indifferent. This school, by the way, reports no definite means of training, save the influence of teachers and a senior course in moral philosophy. Another speaks of finding in the school as a whole, evident though slight results. Several allude to the fact that there are individual cases of serious failure in moral growth.

But these are in a decided minority. The vast majority of the correspondents discern positive and unmistakable moral improvement in the older pupils, and believe that a portion of this is due to the influences of the high school. Nearly all could unite with the

principal who writes: "I think the boys and girls who have been with us, irrespective of the homes whence they came, are the better for it."

An interesting question at once arises. Can the testimony of the high school principals be relied upon with reference to the results of their own work? Not that any one would suspect them of deception. But are not their views colored more than they know, by what Herbert Spencer has termed "class bias."

That we might have an answer ready for this doubt, replies to the three questions already mentioned were obtained from twenty-two superintendents of schools, and twenty persons not connected with the schools. Collateral testimony is thus afforded concerning seventeen high schools, whose teachers have sent reports, and fresh evidence given concerning eight schools not alluded to above. Of these latter eight, seven are aiming directly at moral training, and one not directly, yet by indirect measures this school is producing good results. This brings the percentage of schools having a direct aim at moral culture to 81 per cent.

Of the seventeen schools about which we have two or more reports, in the case of nine the reports from all sources are in entire agreement; in regard to the other eight there is a variance of judgment. From one city we have ten reports, nine favorable to the moral aims, methods and results, and one unfavorable. In no case is the majority of reports contrary to the judgment of the high school teacher, though in two cases the reports are equally balanced. There is but one case in which a superintendent of schools disagrees with a principal in respect to the latter's aim in school discipline, and in that case good results are claimed alike by both. There are seven cases, however, in which the outside observer thinks the teachers have no direct moral aim, while the teachers say that they have such aim. Five of these outside observers are clergymen.

Here is a sample of these latter cases: In the town of ———, the Principal writes:

"1. We try to keep the aim of moral training constantly before us, yet sometimes, of course, moral training is forgot in pressure of mental work or formalities of discipline. 2. The regular routine of the school seeks and tends to develop industry, regularity, punctuality, freedom from interference with others etc. General talks are given at times, and discussions of elements of character arise very often in connection with history, literature, etc. Temperance teach-

ing comes in connection with physiology and chemistry. Personal talks are of frequent occurrence. 3. I think there is in general a higher moral tone in the last years of school than in the first. I cannot untangle the threads of influence, however, so as to say how much is due to school."

The superintendent of schools writes: "1. They do, as a general rule. 2. System and orderly arrangement in the recitations, exercises, entering and leaving rooms, etc.; facts from history and biography, sentiments in selections of literature, and occasional direct instruction in morals. 3. There is generally an apparent improvement."

The outside observer, a clergyman, has this to say: "To your first question, No. I'm afraid not. To the second, hardly any whatever. To the third, no special results. The town is under —— control (naming a sect not his own) in its school interests, and the laws of the commonwealth on moral and temperance training are set aside."

Of the twenty whom I call outside observers, eight think the teachers have a direct moral aim, seven think they do not and three confess they don't know. One thinks a few do, but most do not, and one fails to answer decisively. Twelve think the moral results good, four think there are no special results, one thinks that parents dread the effects of sending their children to the school in his town. Three give no definite answer. The majority view is fairly represented by this quotation from an editor's letter: "The pupils turned out from the High School here will in character compare favorably with any other class of citizens in our population."

CONCLUSION.

We have now seen that in view of the opportunities of public school life, and in view of the nature of moral training itself, the Commonwealth has a right to expect training in morality as a result of its public schools. We have had testimony presented which seems to show that the aims and methods of the schools are directed, in the large majority of cases, to this end. We have further seen that positive and beneficial moral results are noted by observers from within and from without the schools in by far the greater number of towns and cities from which we have reports. We are ready to declare, therefore, that in the respect of moral culture the public

schools of the commonwealth are doing their duty fairly well,—as well, for instance, as the home, the civic corporations, and even the church, are doing the distinctive work which is their part in modern civilization. In the same breath, however, we frankly add, that just as the home, the city government and even the church, find the plane of practical accomplishment much below that of ideal and possible accomplishment, so it is true that in the public school much more can and ought to be done in character building. In the first place there are many teachers who should become more earnest men and women for the sake of their influence upon their boys and girls. There are many also in the aggregate, though a minority of the whole, who still need to make their direct aim the moral advancement of the pupils. In fact, ought we not to make the character of the child our *chief* object, holding everything that can improve this as good, everything that can injure this as bad? O that some power would move us to rise above the pettiness of our registers and daily marks, our tests by tongue and pen, that we may shape these springing lives for the future that awaits them. For this, thank God, is our real work, the rest but the enclosing pale; and a glorious work it is. Let us heed the words of a certain canny Scot;*

“O brother schoolmaster, remember evermore the exceeding dignity of our calling. It is not the holiest of all callings; but it runs near and parallel to the holiest. A noble calling, but a perilous. We are undershepherds of the Lord’s little ones; and our business it is to lead them into green pastures, by the sides of refreshing streams. Let us into our linguistic lessons introduce cunningly and imperceptibly all kinds of amusing stories; stories of the real kings of earth, that have reigned in secret, crownless and unsceptred, leaving the vain show of power to gilded toy-kings and make-believe statesmen; of the angels that have walked the earth in the guise of holy men and holier women; of the Seraph-singers whose music will be echoing forever; of the cherubim of power, that with the mighty wind of conviction and enthusiasm have winnowed the air of pestilence and superstition.

“Yes, friend, throw a higher poetry than all this into your linguistic work,—the poetry of pure and noble motive. Then in the coming days, when you are fast asleep under the green grass, they will not speak lightly of you over their fruit and wine, mimicking your accent and retailing dull, insipid boy pleasantries. Enlightened by

* Day Dreams of a Schoolmaster.

the experience of fatherhood, they will see with a clear remembrance your firmness in dealing with their moral faults, your patience in dealing with their intellectual weakness. And calling to mind their old school-room, they will think: Ah, it was good for us to be there! For unknown to us, were made therein three tabernacles, one for us, and one for our schoolmaster, and one for Him that is the Friend of all children, and the Master of all schoolmasters.

"Ah! believe me, brother mine, where two or three children are met together, unless he who is the Spirit of gentleness be in the midst of them, then our Latin is but sounding brass, and our Greek a tinkling cymbal."

Committee { RAY GREENE HULLING,
O. B. BRUCE,
A. P. STONE.

BOSTON, Dec. 1, 1888.

*ENGLISH IN SECONDARY SCHOOLS.**

At the last annual meeting of the Massachusetts Teachers' Association, the gentlemen whose names are affixed to this report were appointed a committee to consider the teaching of English in secondary schools, and to report upon the character and results of the work now done, its proper aim and scope, and the best method of dealing with the subject.

An effort was made to obtain needed information concerning existing conditions, by sending circulars, bearing twenty-one questions † to the principals of a large number of the high schools and academies of Massachusetts, and to the principals of about fifty of the most important high schools in different states. Although a large number failed to respond, nevertheless, the answers received come from sections widely separated, and are numerous enough to give a fairly correct idea of the English work in the secondary schools of Massachusetts, and to throw considerable light upon that done in many other states. The information given by these replies has been supplemented by extensive correspondence and by many interviews with leading teachers.

* Report of a Committee of the Massachusetts Teachers' Association, December 1, 1888.

† See Appendix.

To all who have furnished material for this report, the committee gratefully acknowledge their indebtedness. They are under special obligation to Mr. Samuel Thurber, master in the Girls' High School, Boston, and to Mr. Ray Greene Huling, principal of the New Bedford High School, for detailed accounts of the English work in the schools with which they are respectively identified, which must have made no slight demands upon their time and thought. Unfortunately, the material furnished by these gentlemen cannot receive, at the time, the consideration which it merits, and it is to be hoped that they will soon make it the basis of papers for some of our educational publications.

This report will aim to present a brief summary of the facts concerning the teaching of English which are revealed by the information in hand, together with such inferences and suggestions as a study of the facts seems to warrant. Its arrangement is determined by the order in which the questions of the committee are printed, and its generalizations concerning the schools of Massachusetts are based upon the assumption that the schools from which replies have been received, fairly represent the entire State.

ENGLISH GRAMMAR.

In somewhat less than half of the high schools of Massachusetts, English grammar receives no attention as a distinct study. In the smaller communities, however, it generally forms a part of the course of study for the first year. This fact does not necessarily indicate that the authorities in those communities think that it is properly a high school study, but it probably shows, merely, that they do not feel that the full preparation given by city grammar schools ought to be demanded for admission to the smaller high schools. All of the schools report some attention to grammatical principles in connection with the study of English literature and composition; but it is difficult to estimate the amount of this work, and its value depends wholly upon the judgment and skill of the teacher. Unquestionably, considerable time is still wasted by many pupils in a fruitless study of grammar, before they reach the high school. In many college preparatory schools whose courses of study extend over six years, the lowest classes are taught the principles of grammar which are essential to the successful study of Latin in less than half of the time usually given to the subject in grammar schools. That clear

knowledge of grammatical forms which constitutes the necessary foundation upon which the teachers of English, Latin, and French are to build, is all that the secondary schools may properly demand.

The plan of reviewing grammar during the third or fourth year of the course, which obtains in a few of the high schools of Massachusetts and in those of several of the leading cities of the West, is worthy of commendation. Such a review may not only serve to give pupils a much clearer conception of the relation of scientific grammar to correct forms of speech than they obtained in their earlier study, but it may also be made to afford valuable training in abstract thinking.

RHETORIC.

There are very few schools that do not make some provision for the formal study of rhetoric. In nearly half of them, this work is done in the second year of the course, and the remaining half are about equally divided in their choice between the first and the third years. There is no unity of opinion concerning the amount of time devoted to this study. The number of recitations varies from twenty to two hundred, and it is probable that the methods of instruction and the results sought vary between equally wide limits. There is much reason to fear that the principles of rhetoric taught in many schools, never bear in the minds of the pupils any definite relation to their own composition. All study of rhetoric which is not accompanied by much reading of standard literature and much practice in writing, is fruitless. The rhetoric should be treated as a reference book for constant use in the preparation and correction of written work rather than as a manual for formal study and recitation.

ENGLISH LITERATURE.

There is abundant evidence that the past few years have witnessed a very encouraging awakening to a higher appreciation of the educational value of English Literature. The amount of time given to it in different schools varies between very wide limits, but there are probably few secondary schools in which it does not receive some attention. In most of the larger communities, the course of study in this department is evidently the result of no little thought on the part of school authorities, but the plans adopted differ widely in aim, scope, and method. Many teachers appear to be earnestly trying to devise the best possible course in English, but each works independently,

and too little effort is made to profit by the knowledge which has been gained by experience in the best schools.

In a very few places the systematic study of English masterpieces is continued throughout the high school course, but, generally, this work is confined to either the last year, or to the last two years of the course, and often to a part of one of these years. It is worthy of note that in a few quite small schools, the course in English has been planned with very great care and judgment, and may well provoke the emulation of larger cities and towns.

Unfortunately, the study of English Literature is optional, to a greater or less extent, in most of the schools. Pupils who study Latin are often excused from the whole, or a part, of this work, and in a large proportion of the smaller schools the regular work in English is not done by the college preparatory classes. The books named by the colleges are read, in odd moments, with some indefinite supervision on the part of the teacher, but they receive little systematic study in school. Perhaps it is the necessity of the case, rather than the choice of teachers, that determines their course of action. The facts stated, however, serve to account, in some measure, for the poor preparation in English of which the colleges are constantly complaining. As the usefulness of the English requisitions becomes more fully appreciated, there will be increased willingness on the part of teachers to give them the attention which their importance merits. The necessary readjustment of work will be made, when the object is seen to be worthy of the effort.

TEXT-BOOKS IN ENGLISH LITERATURE.

A very large proportion of the schools use some manual of English Literature; and it is to be feared that a study of facts about authors and of criticisms of their works is still mistaken for a study of literature. Doubtless many a young person spends dreary hours in memorizing from a manual, statements that he does not understand, when from a novel or poem adapted to his needs, and calculated to take a strong and permanent hold upon the heart and character, he might be gaining an inspiration of priceless value in after life, as well as a more enlarged and profound conception of literature itself.

These manuals are, no doubt, largely responsible for the mistake made in about half of the schools, of studying authors in chronological order. The manuals should be displaced by well selected works,

and the order in which the works are studied should be determined by their difficulty, and by their adaptation to the age and capacity of the pupils.

ANNOTATED EDITIONS.

Slightly more than eighty per cent of the teachers from whom replies were received, pronounce in favor of fully annotated editions of the works of authors, but about twenty per cent of that number state that their pupils are not held responsible for the content of the notes, and some of the most successful teachers of English enter a vigorous protest against the use of such editions.

These books are attractive, and present a large mass of information in a very convenient form; but, nevertheless, their inevitable tendency is to foster methods which consume the recitation hour in a minutely critical examination of a very limited portion of the text, and give pupils the impression that the purpose of the study of literature is to analyze and dissect, rather than to appreciate and enjoy. Both teacher and pupil are likely to overestimate the value of the notes, and to feel that it is of more importance to elucidate verbal obscurities and explain figurative allusions, than to grasp noble thoughts and appreciate the symmetry, completeness, and excellence of form in which they are expressed. The notes enable teachers to frame quickly questions admitting of definite answers for which pupils can be held responsible. The effort made to prepare lessons takes the direction most likely to meet the teacher's approval. The result is that the notes receive more attention than the text, and the recitation hour is wasted with questions and answers that afford no valuable training in the use of language, and that frequently involve subject matter bearing little relation in the mind of the pupil to the thought of the author. An accurate measure of the teacher's power is the skill with which he discriminates between what is useful and what is worthless to the pupil in a fully annotated book.

PROSE AND POETRY.

The answers to the question concerning the works studied during the past school year, show that a disproportionately large amount of time is given to poetry,—the prose bearing to the poetry about the ratio of one to six. Only a very small number of correspondents made any mention of English and American patriotic eloquence. Any scheme

of instruction in English which neglects prose and confines the pupils' attention almost exclusively to poetry, is radically faulty. Poetry appeals purely to the emotions, and its end, like that of music and painting, is to give enjoyment. Prose appeals to the intellect, stimulates action and inquiry, and forces upon us the necessity of thinking,—the most important result of all education. Refinement of taste, loftiness of imagination, and awakened sensibility may result from the study of poetry, but our choice prose literature, much of which is written in a style of elevation approaching the purest poetry, exerts a far more potent influence over the formation of character and the conduct of life. Many a man owes a large measure of his success to some inspiring novel or essay, which first gave life to his feeble aspirations, and has exerted a healthful and elevating influence over his whole being.

In making a selection of works to be studied, the practical consideration must not be overlooked that the language habitually employed by pupils is prose, and, therefore, the exercises best adapted to improve their composition are to be drawn from prose masterpieces. No single change is more imperatively demanded than the introduction into the courses of reading of a much larger amount of well-selected prose.

It is one of the highest duties of the teacher to endeavor to inspire a love and reverence for the great and good of other times. No boy should be permitted to grow up in ignorance of the immense service which the eloquence of Burke rendered to the cause of American liberty; or without having deeply impressed upon his mind the fact that we are indebted to Webster, more than to all others, for the ideas of the value of the Union, and of the sacredness of the Constitution, which inspired the patriotic sacrifices that saved the nation in the dreadful crisis of secession and civil war. The teacher who neglects to read with his classes some of the works of these great masters of eloquence, loses his rarest opportunity to make deep and lasting impressions concerning the sacred character of American citizenship, and the duties which all good men owe to the State.

PRACTICE IN WRITING.

There is a remarkable difference in the number and length of the formal essays required by different schools. The extremes are represented by a large western high school in which every pupil is ex-

pected to prepare, four times a year, an essay covering nine pages of congress letter paper, and a Massachusetts school which demands forty compositions a year, about one and one-half pages in length. Not far from half of the schools report that essays are required once a month. With very few exceptions, the schools require no careful composition during school hours. Of course, numerous exercises and examinations are written in all schools, but these are seldom examined and criticised as exercises in English. The various departments of most schools are the natural enemies of the teacher of English, and it would be difficult to devise a plan better calculated to make good writing impossible than the methods of conducting written examinations which generally prevail.

Subjects for compositions are regularly drawn from some department of school work in less than one-fourth of the schools; in the remaining number, the topics chosen are miscellaneous in character. The plan, adopted in more than half of the schools, of permitting pupils to select their own subjects for compositions is productive of no little mischief. Much time is likely to be wasted in aimless thinking upon many different topics, and the one finally chosen is often unsuited to the ability of the writer. Subjects may be drawn from any source whatever, provided the material is such that it can be genuinely assimilated by the pupil, but the teacher's assistance and direction are always necessary in guiding to right sources of information, and preventing fruitless and discouraging research. A large part of the themes may well be based upon material furnished by school work.

Short compositions, at frequent intervals, are much better calculated to produce facility in writing than long ones at periods widely separated, even though the aggregate amount produced is the same in both cases. The one indispensable requisite is much practice in writing, and the aggregate amount is likely to be increased, if many short essays are required. A boy will write a page with considerable spirit and enthusiasm, with some approach to individuality of style if his work is not too severely criticised, upon many a subject that would prove entirely fruitless if four pages were demanded.

CORRECTION OF COMPOSITIONS.

It is to be hoped that discussion and interchange of ideas will develop methods better adapted than those that are now generally practiced, to make the teacher's work in correcting compositions

useful, not only to the writers, but to the entire class. The importance of this subject cannot be overestimated. No school work requires more patience and judgment, or makes greater demands upon the teacher's time and strength, than that of correcting compositions, and none seems so fruitless of results that are fairly commensurate with the teacher's efforts. Any method is radically wrong that does not compel the pupil to give to the consideration and correction of his mistakes, an amount of time and effort proportionate to the labor of the teacher in discovering and pointing them out.

As compositions are examined, words, phrases, and sentences that need criticism may be recorded by the teacher, and a mass of such material made the topic of a recitation. It is well to mark sentences that demand special attention, and to have them copied on the blackboard with all their faults. Corrections can then be made quickly, in such a way as to benefit the entire class. An essay that is radically and pervasively faulty should be read in the class, and discussed to such an extent that its errors will be evident to every member.

Parts of essays, or even entire essays, should be copied by pupils and re-examined by teachers. The ideal plan is to have the corrections studied by the pupil, the principles on which the corrections are made investigated, and then each pupil called to recite to the teacher upon these corrections. For this much time is needed, but it can be done occasionally with a few at a time. One teacher reports that, after public comments upon errors that are rather common, on a day succeeding the return of the corrected essays, he goes rapidly through the class seeing that all have made the necessary corrections, and getting explanations of the reasons in some of the more serious examples in each essay. It is always important to see that the same errors, even in spelling, do not recur in succeeding essays, without rebuke. English composition is to be taught as a progressive subject, and care must be taken to see that pupils are constantly gaining.

Mistakes should never be fully corrected upon the pupil's manuscript. It is only necessary to indicate the character of the errors, with an occasional hint as to the method of correction. The pupil should never be relieved from the necessity of thinking, but his thought should always be so directed as to enable him to avoid fruitless effort and a discouraging loss of time.

AIM AND METHODS.

About thirty per cent of the schools aim to give a critical knowledge of a few selections rather than a general knowledge of a con-

siderable amount of good literature; in fifty per cent the object sought is reported to be general rather than critical knowledge; while the remaining twenty per cent strive to compass both objects. In some excellent schools a very few works are examined somewhat critically, and in addition, a large amount of choice literature is studied in a manner well calculated to develop a taste for good reading.

When we take into account the side light thrown upon this question by the answers as a whole, and the information obtained from other sources, it is clear that a spirit of minute and searching verbal criticism still dominates much of the teaching. Very much attention is given to historical and other allusions, somewhat less to figures of speech, and decidedly less to the meaning of words, metrical forms, style, and paraphrasing. Few schools give any attention to parsing.

One of the largest high schools of the West sends a well selected course of reading for the entire four years, consisting of thirty-five different works. The course is headed by an explanatory note which reads as follows:—

COURSE OF INSTRUCTION IN ENGLISH.

To be critically read in class with attention given to the formation of words, construction of sentences and expression of thought; characteristics of style and figures of rhetoric, as used by the author; the more important features of English prosody; biographical, historical and classical allusions; oral and written discussions and analysis of subjects, characters, scenes and events; frequent written exercises upon well considered topics; the life and writings of the author and his more noted contemporaries.

This seems to your committee to be attempting too much. Courses of study and methods of teaching are far too frequently determined by the supposed demands of public opinion. Now public opinion upon educational subjects is exceedingly changeable, illusory, and difficult to determine. The general public has no more right to an opinion concerning methods of teaching than upon questions of law or medicine which are always referred to men who have made those sciences a specialty. It is the imperative duty of every teacher to become a diligent student of the history and theories of education, and to have ideas concerning educational subjects, based upon the fundamental principles of psychology and the best experience of the ages, and then quietly but firmly to demand for his pro-

fessional opinions the recognition to which they are entitled. Improving courses of study is a favorite recreation of school boards, and many of the courses in English show that they have been influenced more by the passing thought of some prominent member of the committee than by the deliberate judgment of a competent teacher or superintendent.

The question whether the aim of the teacher of English should be to give a critical knowledge of a few selections, or a more general knowledge of a considerable amount of good literature, is of vital importance and merits further consideration.

Since the admission requirements of the colleges must necessarily influence to a considerable extent the English work of the schools, it is important to consider carefully the purpose and aim of those requirements. The tendency of the changes which have been made in the requisitions from year to year, the character of the examinations, and the opinions expressed by professors of English, all show clearly that the chief end sought by the colleges is increased facility in writing the language. An exercise in the correction of bad English is made a part of the examination, because it is presumed that ability to detect quickly flagrant errors, is likely to be associated with skill in composition. The whole examination is in reality a test of the candidate's power to express thought in language. As a preparation for the examination, the thoughtful reading of numerous English masterpieces is required, because not only do they furnish excellent models of expression, but each yields a definite content of thought upon which the pupil may exercise his own power of composition. The demand for knowledge of the subject matter of the books is by no means minutely exacting, the essential factor of the requisition being an abundant supply of material to be used by the pupil in demonstrating his power to write. The college requirements are evidently based upon the conviction that the study of literature which is best adapted to give the power of clear, concise, and vigorous expression, is also best calculated to cultivate the taste, refine the sensibility, and purify and expand the moral feelings. Any other supposition would compel the conclusion that the colleges are unmindful of the most valuable fruits which the study of literature can yield.

The requisitions neither necessitate nor remotely suggest as desirable the kind of critical study of literature which prevails in many schools,—a study which demands an accuracy of biographi-

cal, geographical, and historical information, such as no adult person, except a teacher of literature, ever feels the need of possessing. Who of the thousands that have read the essays of Macaulay with delight has ever attempted to exhaust all the possibilities of minute research which a single essay suggests! Why should we demand from pupils a kind of study that no person, in his right mind, ever undertakes for himself!

All our knowledge which is directly available and permanently useful, has grown in constantly widening circles, in which each successive addition has been linked to our previous acquirements by a definite relation. It is a pedagogical crime to make a pupil look up carefully historical and biographical allusions which must stand in his memory as isolated facts, bearing no relation whatever to his acquired knowledge. A false notion of thoroughness often leads to viciously critical methods. The wise teacher knows that the greatest thoroughness is attained in the end, by delaying many things until a more convenient season, and by never attempting to exhaust all the possibilities of the subject in hand. Our analytical questioning never serves to deepen the impression made upon the heart of a young person by a strong and beautiful passage, and it may easily destroy the effect of what is calculated to produce an awakened capacity of feeling, to quicken and elevate the imagination, or to make a profound and lasting conviction of moral obligation. We are in danger of losing whole sheaves of wheat while striving to glean a few worthless straws.

The main purpose of the teaching of literature in secondary schools should be to lead pupils to enjoy and appreciate good books. The educational process which is best adapted to produce this result is also best calculated to secure increased facility in the accurate and graceful use of the language. Minutely critical study of a few selections, extensive knowledge of the history of the development of the language, a large amount of biographical information, and wide acquaintance with the opinions of famous critics concerning the works of the great masters of English style, are not essential factors in the process. The indispensable condition is the thoughtful reading, under proper guidance, of a large number of delightful and inspiring books, with the thought directed mainly to the intrinsic value of the subject matter and the admirable forms of literary expression.

The exercises designed to fix in the minds of pupils the content of the works read, should always compel practice in the skilful use of language. In many of the schools, the value of these exercises is fully recognized, and the methods employed deserve high commendation, but its importance cannot be too strongly emphasized. The memorizing and recitation of choice selections, the careful preparation of abstracts, the statement of the main points of an argument, the analysis of the plot of a story with accounts of the impressions made by striking passages and chapters, the description of scenes and the narration of events which constitute the subject matter of a book, and all similar exercises, not only serve to fix in mind the content of the works studied, but also afford most valuable drill in the use of language. The value of paraphrasing appears to be underestimated. Few exercises are more fruitful in results than those in which the pupil is required to express in the best language which he can command, the thought which he gathers from an important passage. Wherever the meaning is obscure, the most rational and helpful method of determining whether the thought has been correctly apprehended is to require a paraphrase, just as we decide whether the meaning of a word is understood, not by demanding a definition, but by asking for a statement in which the word is correctly used.

The following specimens of paraphrasing, selected from recent class exercises, well illustrate my meaning. The passage used is from Shakespeare's "*Julius Cæsar*," Act III., Scene I.:

Cæsar, (to *Metellus Cimber*, who has begged to have his brother recalled from banishment.)

"Be not fond,

To think that *Cæsar* bears such rebel blood,

That will be thaw'd from the true quality

With that which melteth fools; I mean sweet words,

Low-crooked curtsies, and base spaniel fawning."

1. "Be not so foolish as to think that *Cæsar* bears such rebel blood that will be changed from its true calling to that which changes fools."

Obviously the boy does not understand the passage.

2. "Be not so foolish as to think that I shall be moved to be untrue to duty by those things which easily influence fools to unfaithfulness; I mean flattery, low bows, and base, fawning behavior."

Clearly this boy does understand it.

Paraphrasing, especially written paraphrasing, besides serving to test the pupil's understanding of the text, is a most excellent exercise in English expression, and, aside from its help in interpreting the author, offers the teacher, in a brief space, almost all the opportunities for teaching how to write that formal essays afford.

The discussions of the class-room should give familiarity with the terms which appropriately designate important distinctions of style, and references to concrete examples should be so frequent as to leave no doubt that the terms used convey definite notions. Most of the ideas which pupils get from the literature of criticism are valueless, because they are so vague and indefinite.

It must not be inferred from the foregoing discussion that your committee recommend that no attention be paid, in the study of literature, to allusions, figures of speech, and difficulties or obscurities of meaning. Whatever is necessary to a fair understanding of the author must always be taught, and all allusions that can be brought into definite relation to the pupil's acquired knowledge, should receive proper attention. The thoughts which we desire to emphasize are that the English class is not the proper place in which to give desultory information concerning history, mythology, geography, manners and customs; that teaching facts about authors and their noted contemporaries is not teaching literature; and that every page of a great masterpiece is rich in material for critical research which is valueless to the young reader, however interesting it may be to the mature and scholarly teacher.

No educational influences are more important than those which give right direction to the taste for reading. It is important to guard not merely against those books which mislead the conscience and studiously present views of life that are fundamentally false, but also against those that merely interest and consume time, but neither elevate the taste nor brighten the life. The best that the schools can do, is to provide for the reading of a large number of helpful and inspiring books in a manner to make them thoroughly enjoyed. Whatever else in our courses of study may come and go, the thoughtful reading of good books, and constant practice in composition should, like Tennyson's brook, go on forever.

No course of reading could be proposed that would meet the wants of all schools, or that could reasonably be claimed to be decidedly better than any other, but a list of desirable works,* more ex-

* See Appendix.

tended, perhaps, than is likely to be used in most schools, is submitted in the hope that it may prove useful to many teachers.

Your committee earnestly hoped to examine a sufficient number of essays from different schools to enable them to speak positively concerning the results of the teaching of English Composition, but the number received is so small that generalizations based upon them are of little value. It can be asserted, however, from the evidence in hand, that the work in composition in a limited number of schools is worthy of high commendation, and it is probable that the writing of many high school pupils is much more satisfactory than the examination essays of the candidates for admission to the colleges.

A very encouraging feature of the correspondence to which reference has been made, is the frequent expression of a desire for more light upon the subject of English, showing that many teachers are by no means satisfied with present methods and results, and are ready to give thoughtful attention to any suggestions which promise improvement. It is believed that the spirit of this report is in accord with the most important recommendations made by our correspondents and fairly represents the tendency of the thought of the best teachers.

Whatever may be the opinion formed concerning present methods and results of the teaching of English, it is impossible to avoid the conviction that recent years have witnessed a very widespread and encouraging improvement.

The time devoted to this report will not have been spent in vain, if it serves to aid, in any way, the onward march of progress; or contributes aught of influence calculated to bring more young hearts into loving relation with the noble thoughts of gifted writers, and to inspire a higher appreciation of the completeness and beauty of form in which genius clothes its thought.

C. W. PARMENTER, Cambridge.	} Committee.
WM. C. COLLAR, Roxbury.	
BYRON GROCE, Boston.	

APPENDIX.

QUESTIONS OF THE COMMITTEE ON ENGLISH IN SECONDARY SCHOOLS.

1. In what years of your course of study are the following subjects pursued, and how many recitations are devoted to each subject?
 - a. English Grammar.
 - b. Rhetoric.
 - c. English Literature.
2. To what extent are the above subjects optional?
3. Number of pupils pursuing each of these subjects?
4. What text book of Rhetoric and what manuals of English Literature, if any, are used in your school?
5. Do you prefer to have fully annotated editions of authors, as for example, Rolfe's Shakespeare? If you use such editions, are your pupils required to study the notes in preparing lessons?
6. What plays of Shakespeare, and what works of other authors were studied by your classes the past school year? Underscore the works to which you give most attention.
7. Do you study authors in chronological order? If not, indicate the order in which they are studied.
8. What changes of authors or works, if any, would you suggest?
9. How often are essays required from the members of each of your classes?
10. Approximately, what is the average length of the essays?
11. In what exercises besides formal essays do pupils have practice in the careful writing of English? Amount of such work?
12. How much of your written work is done as class work in school?
13. What method do you adopt to make your work in correcting individual essays useful to the class?
14. From what sources are subjects for essays taken?
15. Do the pupils select their own subjects?
16. Do you aim to give a critical knowledge of a few selections, or a general knowledge of a considerable amount of good literature?
17. Give an idea of the attention paid to:
 - a. Parsing.
 - b. Meaning of words.
 - c. Figures of speech.
 - d. Metrical forms.
 - e. Historical and other allusions.
 - f. Style.
 - g. Paraphrasing.
18. In what way do you try to fix in the minds of pupils the contents of the works read.

19. If you have classes fitting for college, taught in a manner different from the method pursued in other classes, please indicate the difference.
20. Please give the committee any information you deem important, not covered by the above questions, and make any suggestions which may occur to you regarding the teaching of English.
21. Please send to C. W. Parmenter, Waltham, Mass., not later than June 20, the best essay, an average one, and the poorest one, in any representative set of essays written by your graduating class during the current school year. If the set of essays should be divided into three groups, how many would be included in each of the classes represented by the essays which you transmit to the committee? It is desired that the essays asked for should not in any way be prepared for exhibition or for this committee, but should be in all respects, representative of the ordinary work handed up to the teacher for correction. If you choose to send essays bearing your corrections and criticisms, so much the better.

The object of the committee is not to criticise, but to get a correct idea of the teaching of English. No use of the information received will be made which can lead to a comparison between schools.

We are aware that this circular makes no inconsiderable demand upon your time; but since our report will be of little value, unless based upon adequate knowledge of existing conditions, we beg you to give us all the assistance in your power.

C. W. PARMENTER, Cambridge.	} Committee
WM. C. COLLAR, Roxbury.	
BYRON GROCE, Boston.	

COURSE OF READING FOR HIGH SCHOOLS.

First Year.

Cooper's *Spy*.
 Scott's *Ivanhoe*.
 Franklin's *Autobiography*.
 Hawthorne's *Wonder Book*, or
 Kingley's *Greek Heroes*.
 The Declaration of Independence.
 Longfellow's *Evangeline*, Miles Standish, and some shorter poems.
 Whittier's *Snowbound*, and some shorter poems.
 Scott's *Lady of the Lake*, or the *Lay of the Last Minstrel*.

Second Year.

Scott's *Quentin Durward*.
 Irving's *Rip Van Winkle* and *Legend of Sleepy Hollow*.
 Addison's *Roger de Coverley Papers*.
 Lincoln's *Gettysburg Address*.
 Macaulay's *Lays of Ancient Rome*.
 Gray's *Elegy Written in a Country Churchyard*.
 Selections of American patriotic poems.
 Selections of humorous poems from Holmes.

Third Year.

George Eliot's Silas Marner, or the Mill on the Floss.
Webster's First Bunker Hill Oration.
Macaulay's Lord Clive.
Irving's Life of Goldsmith.
Goldsmith's Deserted Village and Traveller.
Selections from Wordsworth.
Tennyson's Idyls of the King, Ulysses, Tithonus, and other short poems.

Fourth Year.

Dickens's Tale of Two Cities, or Thackeray's Henry Esmond.
Webster's Reply to Hayne.
Burke's American Taxation, or Conciliation with America.
Washington's Farewell Address.
Carlyle's Essay on Johnson, or Essay on Burns.
Shakespeare's Merchant of Venice and Julius Cæsar.
Milton's Paradise Lost, Books I. and II., and Comus.

*LATIN WRITING IN THE SCHOOLS, AS SEEN
THROUGH THE HARVARD ENTRANCE
PAPERS.**

BY HENRY PREBLE, ASSISTANT PROFESSOR OF LATIN IN HARVARD
COLLEGE.

Every teacher is, I suppose, familiar with the complaint often made by pupils attempting to write Latin, that they have no vocabulary, but I suspect we do not always bear in mind what this lack of vocabulary really means. Especially do we lose sight of a difference here between Latin and the other languages with which our pupils have to deal. In French or German or even Greek, though of course no real mastery of the language can be attained without learning to *think* in it, a considerable degree of proficiency is still possible for one who depends upon the words of his native tongue to act as a medium between the foreign word and the idea represented by it. In other words, certain idioms apart, one can generally find in French, German and Greek, a noun or verb or adjec-

ive, which shall fairly enough represent a given English noun or verb or adjective. With Latin the case is different. As soon as one gets beyond the names of familiar objects like *equus* or *mensa*, or of simple qualities or actions, such as *bonus*, *dicere*, he finds himself obliged to scrutinize more carefully the idea indicated by his English word before he can express it in Latin. The Romans managed to give utterance to their thoughts with a smaller body of words than other civilized peoples; that is, they made a given word represent in different situations very varied phases of an idea, when in other languages each of these phases is apt to have its own separate word. I do not mean, of course, that this causes the whole difficulty alluded to, but the same habit of mind which produced the small vocabulary of Latin also gives a unique quality to the *kind* of thought-bundles made by the Romans with their separate words. That is to say, the thought expressed by a given combination of words is more constantly divided in a different fashion among the individual words in Latin than in other languages as compared with English.

It is therefore a prime necessity in studying Latin to put one's self as early as possible and as thoroughly as possible into the Roman attitude of mind, to get at the words from the inside so to speak. This involves a certain ability to use the reasoning powers and to put things together so as to draw an inference from them at a period of study at which in other languages the use of the memory alone is sufficient for reasonable progress. The way to acquire this use of the reasoning powers is to cultivate a habit of observation. In no branch of knowledge perhaps is the habit of observation more valuable and in none has it a better opportunity for development than in the study of the classical languages.

I have hinted at the desirability of an intimacy with Latin words. The first essential towards this intimacy would seem to be, especially for us latter-day foreigners, to make ourselves thoroughly familiar with differences of form. We should be able to distinguish the cases of nouns and the persons and tenses of verbs, not as pedantic facts of knowledge, but as living representatives of details in the expression of thought without which we cannot understand what the writer means. One of the two chief uses of elementary Latin writing is to acquire a vital feeling for the forms of words.

Now, as I look over the examination books of the candidates for admission into Harvard College, I cannot help being impressed by

the apparently wide-spread want of any real feeling for the outward aspect of Latin words. Even the best books written last June, the books of those who received credit in Greek and Latin Composition, display almost without exception such forms as the following:—*sacrilegis* and *sacrilegiæ*, meant to be the genitive singular of a noun meaning sacrilege; *perfidius*, used as nominative singular masculine; *sacrilegeo*, *gaudeo*, *custodio*, and *custodi* as ablatives; *fugivit* and *effugivit*, *redebat*, *rediebat*, *redivit*, *custodibant*, *revertus*, *pervenitum* (or perhaps the writer intended *pervenitum*) among verb forms; *proditia* for *proditio*, even *omnum* as accusative singular and the monstrosity *malfortunam* for misfortune. A different phase of the same insensibility to form is shown in such confusions as the following:—*post* for *postquam*, *adventis* and *fugito* treated as active participles, *veheretur* serving as a deponent verb, *minore* and *minores* for the adverb *minus*, *quondam* used as an adjective and so forth.

Closely allied to this mistiness in regard to form is the darkness which reigns over the meanings of common Latin words. Indeed the modern school-boy appears hardly to regard a Latin word as the representative of an idea at all. When he translates from Latin into English, instead of starting with the individual words and building up therefrom the meaning of the sentence, he has a habit of conjecturing, from any hazy fragment of a notion that presents itself, the general meaning of the sentence, and then wrapping this about the individual words so far as it will go. The analogous process applied to translating English into Latin produces the most painful results. I see no remedy for such a state of things except the live study of the Latin words as they are, rather than the contemplation of them as they appear reflected in English terms. A start must of course be made in Latin as in other foreign languages by learning through individual acts of memory the meanings of the short, root words, but the natural tendency, especially for a conscientious pupil, is to carry this process too far and to attempt to get the longer, derivative words by looking them up separately in a dictionary and labelling them with English equivalents. The *reductio ad absurdum* of this tendency is illustrated by a thing which students have told me more than once, namely that a fellow learned to know what a word meant in a certain passage, say, of Cicero, but didn't know the same word if he met it in Virgil. I hope all will agree with me that a much more solid foundation can be laid by leading the pupil to appreciate as early as possible the difference

between the function of the stem part of a Latin word and that of the ending. Having learned the simpler words, he should be shown how to infer from the elements of more complex words what their meanings ought to be, and should use his lexicon chiefly as a means of confirming or correcting his inferences. Especially in learning to distinguish between words more or less synonymous is the mechanical dependence upon English equivalents hopelessly inadequate. Because, for instance, *ultimus* means "last," the youthful writer is prone to think that whenever he wants to say "last" he can use *ultimus*. He either does not think at all of *postremus*, *extremus*, *supremus*, *proximus*, *novissimus*, or else he wonders at the extravagance of a nation who had so many words for the same thing, especially when their general stock of words, as he has often been told, was unusually meagre. The most amusing instance of the kind of confusion in question which I ever met among my own pupils was that of the struggling worker who when speaking of the "horse which bore Cato through the wars in Spain" said "*equum qui eum perforaverat*." Such things will no doubt always happen, but if the Latin words conveyed their meaning more directly into the pupil's mind we should not have found him last June so often using *putabat* for *cogitabat* and *hostis* for *inimicus* or trying to indicate remarkable achievements by *singularia* and escaping by *subducens*.

But not to dwell too long upon this point, I will call attention to what I conceive to be the other chief use of elementary Latin writing. This is to give the pupil some definite notion of Latin order. Almost the only thing I remember having been told about this matter in my own younger days is "that the forms and constructions of the words must be attended to first and their order left till a later period." Nothing could be more pernicious. Even the simplest sentence has to be written in *some* order, and it must be indeed a dull boy or girl who can read many Latin sentences without observing that they are not arranged like English sentences. I dare say this subject receives more worthy treatment now-a-days, but the entrance books show that improvement is still possible. The common doctrines on Latin word-order seem to me partly insufficient and partly erroneous. First we have the general rule laid down that the subject stands first and the verb last. Without denying that this rule has a certain basis of truth beneath it, I believe that it is a thoroughly bad rule with which to start in learning Latin order. At best it introduces into the pupil's notions on the subject a mechanical quality to which the Romans

were complete strangers. Indeed I know of a school where the rule was so rigorously enforced that the boys made it a regular habit to write their subject first and then, calculating the probable length of the sentence, to place the verb at its end, leaving the intervening part to be filled up afterwards. Two further objections to the rule are, first that, except upon certain points of detail, it leaves the middle of the sentence in a good deal of a jumble, and secondly, that any ordinarily wide-awake youngster soon sees that Cicero seems to have been unacquainted with such a rule. The difficulty is increased rather than diminished by the further rule that the regular order is constantly varied for the sake of emphasis. The pupil is told that any word but the subject may be made emphatic by being placed first, and sometimes that any word but the verb may be emphasized by being put last, and one or two special directions are given him about certain isolated details. The effect of all this is too apt to be to leave the mind with a helpless feeling of indefiniteness and incompleteness. Most boys have a pretty crude notion of the nature of emphasis in general. They know, perhaps, that some word in an English sentence is wont to be uttered more forcibly than the rest, and that you can sometimes tell what word should be so uttered by its being printed in italics, but with regard to any thing more subtle they are very much at sea.

Now the Latin language furnishes us with the most admirable instrument of education in this matter. The Romans were a rhetorical people and marked shades of emphasis with wonderful delicacy, but also with great distinctness. This they accomplished in the main by a very simple device, which I believe to be the key to all Latin word-order. Whenever a Roman meant what we express by saying "a good man," he put the words in the order *bonus vir*, and whenever he meant "a good man" he used the order *vir bonus*. So, if he wished to say "the horse runs" his arrangement was *equus currit*, but if he meant "the horse runs" he said *currit equus*. To understand this properly and profit by it, the pupil must be shown the difference in the thought according as the one idea is emphasized or the other. He must appreciate that when we emphasize "good" we call particular attention to the contrast between that quality and some other quality, like "bad" for example, that when we emphasize "man" we mark a contrast between that kind of being and some other, as woman or angel, and that if we emphasize "runs" we are contrasting a certain action in some way with other actions, like

crawling or standing. As soon as these distinctions have been mastered the pupil is ready to take the next step and to consider such sentences as "he writes Latin abominably." He will see that the thought here expressed may be presented to the hearer's mind in several ways, according to the relative prominence given to the different ideas of which it is composed. If the speaker is thinking chiefly of the language which is badly written, his sentence will begin with the word *Latine*; then he will put *scribit* or *atrociter* next according as he means to contrast writing with reading or speaking, or prefers to emphasize the manner in which the writing is done. If, on the other hand, he is thinking as he begins his sentence rather of the writing or the way it is done, he will put *scribit*, or *atrociter*, first, and so on. It is important here to observe that the difference between the most emphatic of three words and the next most emphatic cannot often be adequately represented by so clumsy an instrument as stress of voice, but my experience gives me complete confidence that this difference and much more subtle differences can readily be felt by an average pupil after a little practice in contemplating *without translating* a given Latin sentence arranged in different orders. As he goes on to the more complicated sentences in which some of the units of thought, so to speak, are indicated by single words while others are expressed by groups called phrases, he sees how the Roman began with the word or phrase best fitted to serve as the central figure of the picture he wished to call up in his hearer's mind, and how the succeeding words and phrases each helped to complete the picture by a harmoniously receding perspective. A bright boy or girl thus learns almost to envy the freedom from purely grammatical bonds in word sequence with which the Roman was blest by his inflectional endings. Under the process that I have been describing a pupil may at first not use the so-called normal sentence order as often as it is found in the Latin authors, but if his writing be accompanied, as it ought to be, with observation in his reading, I am sure he will soon acquire a habit of thinking, and therefore of writing more as those authors did than he is ever likely to do by starting with any grammatical rule of order.

In thus characterizing the forms of words and their order as the two chief things to be learned by elementary Latin writing, I may seem not to give proper weight to the acquisition of the ordinary facts of syntax. This matter I am inclined, for various reasons, to subordinate to the other two. At all events our entrance books exhibit a

relatively better acquaintance with the constructions of Latin words than with their forms or their proper arrangement.

Another thing that strongly impresses me in these entrance books is the difficulty of the advance from simple isolated sentences to continuous composition in Latin. Here, I fear, an important difference between Latin and English is too little borne in mind. I find myself constantly thinking of a series of English sentences as a string of beads, each independent of its neighbor though all forming one whole. A series of Latin sentences, on the other hand, resembles a chain of links. Each member is intertwined with its predecessor and its successor. Or, to put it differently, the unit of English Composition is the sentence, while the unit of Latin Composition is the paragraph. On this point our candidates seem to be in a state of virgin innocence, and for that I believe the normal sentence theory is largely to blame. In one of my classes not long ago there was a student who had come from another college. He wrote admirable Latin sentences but somehow his performances had no real Latin effect. I explained to him the difference between Latin and English which I have just mentioned and showed him how he kept changing the point of view of his thought by beginning so often with the subject of the sentence. The effect of my suggestions upon his style was beautiful to contemplate. The other day a pupil who had likewise come from a sister institution laid before me as a case in which he could see no reason for making the first idea in the sentence emphatic the passage from *Cicero de Senectute*, xxii, 79 ;—*apud Xenophontem autem moriens Cyrus maior haec dicit*, etc. He could not get over the idea that it would be more natural to emphasize Cyrus here than Xenophon, but when I called his attention to the continuity of Latin writing and pointed out to him the sentence before, *haec Platonis fere*, in which Cicero sums up what he has been saying of one Greek writer in order to pass on to quoting another, the smile of satisfaction which came over my pupil's face would have been inspiring to any teacher's soul.

I would then have the boy taught to observe this continuity in Latin style and to see how that word of a sentence which makes the smoothest transition to its thought from the thought of the sentence before is so often taken as the emphatic word to be put first.

I have thus spoken of three points in which we should all be glad to see improvement in our pupils and have tried to indicate some means by which I think improvement might be attained. There

is one kind of prevalent blunder in which all three points are more or less involved, namely the use or abuse of words like *quidem*, *autem*, *enim* and the enclitic *que*. Very few boys seem to have any real notion of what such words are for, and, when they use them at all they put them in the most outlandish positions. *Autem* and *enim*, particularly, they put first in their clauses, though they have never seen them there in any Latin they have read, and *que* is attached to any word rather than the second of a pair or the first word in the second of two connected phrases, as the youthful writers have invariably found it in the classic prose they have studied.

May I ask the preparatory teachers then to redouble their efforts to give their boys and girls a live idea of their Latin words in themselves, a more thorough consciousness that the order of a Latin sentence means something, and a real conception of the continuity and smoothness of Latin style? And will these teachers deal gently with me if the lapse of years since I had any personal experience with young pupils has made me come to expect too much, and point out to me the practical difficulties which may cause my wishes to seem Utopian?

REMARKS OF W. C. COLLAR, HEADMASTER OF
ROXBURY LATIN SCHOOL.

We have happily drifted, of late years, into the custom of asking college instructors to read papers, from time to time, before this Section of our Association, to show us how, from their standpoint, the results of our work as preparatory teachers appear. For my own part, I sincerely acknowledge my indebtedness for the benefit that I have received in this way. If I have sometimes heard criticisms that made me wince, I have fully appreciated the general candor and justice of those criticisms, and the great help it is to have such clear, intelligent, and thoughtful estimates of the preparatory instruction. I sometimes wonder whether the tone of manifest indulgence to the shortcomings of the schools, as shown by the entrance examinations, and subsequent evidences of imperfect preparation, may not be due in some measure to the consciousness on the part of college teachers that sometimes young men, after being in their hands four years, go

forth not absolutely perfect in all points of scholarship. However that may be, the paper to which we have just listened is no exception in point of kindness and helpfulness. I was fully prepared to hear trenchant criticisms, and a serious, if ever so just, arraignment of the schools on this subject of writing Latin; for my own belief was that no part of the preparation for college was more imperfect, perhaps no part so poor. I know of no subject that is so generally distasteful, or to speak more correctly, so generally detested. I know of no subject in which a fair measure of success is so seldom attained, and in which lamentable failure is so common. I know no subject, unless it be Greek Composition, that is so discouraging to teach, because in none do energy, intelligence, and skill seem to count for so little. Pupils hate it because progress is slow, difficult, and, if I may say so, intangible; and because in a great majority of cases any satisfactory attainment seems nearly impossible. Failure seems inevitable.

Such, at any rate, was for a long time my experience. I have a very high opinion of the value of practice in Latin Composition, rightly pursued; but my discouragement, and my dissatisfaction at what seemed to me the futility of my attempts to impart some power to my boys to express thought in Latin, to say nothing of writing sentences grammatically correct, would have led me, years ago, to abandon such labor altogether, but for the requirements for admission to college. Slowly I came to the conclusion that the fault was not in my boys, nor in myself, but in the method. What was the method? It was that which I suppose obtains very widely, if not almost exclusively, and which may be illustrated by the first manual of Latin Composition that comes to hand. To describe one is to describe all—a series of exercises disconnected and unrelated, each one commonly intended to illustrate one or two principles of syntax, often with the words in the several sentences that are designed to exemplify the particular construction printed in italics. Not only are the sets of exercises unconnected, but usually there is no continuity in the successive sentences. Thus all possibility of any human interest in the *material* on which the pupil works is very effectively eliminated. Nothing more jejune and wooden could be devised or imagined. The exercises are not based on a Latin text which the pupil has translated and studied, and so are out of all direct and vital relation to his previous study and acquisitions. As, by this method, practice in writing Latin is quite divorced from reading and translation, the latter hardly helps the former in the slightest degree. This is the radical

vice of the method, for which nothing can atone. The preparation for rendering an exercise into Latin is the learning of certain syntactical rules and committing a vocabulary to memory. Could a method be more opposed to right reason and the nature of things? Is it any wonder that from such a mechanical method nothing should come but an artificial product? Is it any wonder that Professor Preble finds a true feeling for order in a Latin sentence quite wanting in the boys that we send him? On this point he would not throw all the blame on us schoolmasters. He criticises, and I think justly, some of our grammar rules. I have recently looked over the rules on the order of Latin words and clauses in two Latin Grammars that are most used in the schools. In one of them the "normal order" is set forth at length, followed by this remark. "In actual practice, what may be called the normal order, is rarely found." I remember that when I last read the *De Amicitia* I was struck with the frequent occurrence of the adverb after the word which it modified; and looking over yesterday a little more than four pages at the beginning of the essay, I found fourteen instances of the adverb so placed; but the grammars to which I have referred, give no explicit intimation that the adverb can ever occupy such a position. Now a boy who had been trained in writing Latin to imitate the authors whom he read, would not be strong perhaps on the "normal order, rarely met in actual practice," but he would be very likely to get his adverbs in the right place.

I have briefly indicated why I think the usual method of teaching the writing of Latin is essentially wrong. But obvious as the objections seem to me, and unquestionable now, in the light of long experience, in my own practice I broke very slowly, very gradually, and with some misgivings, from the traditional method. It is only three or four years since I totally discarded all manuals, and began to form exercises for the less, as well as for the more, advanced pupils wholly on portions of Latin books that had been translated and discussed in recitation. But I have had sufficient experience to speak with confidence of the extremely gratifying results of this new departure. Latin Composition in my school is no longer pursued with dislike by pupils, and weariness and discouragement by the teacher. My only regret now is that the action of Harvard College in relation to the entrance examinations puts Latin Composition at a relative disadvantage. In fact, in consequence of the changed requirements at Harvard the subject is now discontinued in my school in the

middle of the course, except by those who, in the last year, take advanced Latin Composition as an extra. As you are aware, the requirement in writing Latin has been dropped from the preliminary examination, with a return, in its place, to the old method, which I, for my part, hoped was definitely abandoned, of questions on forms and syntax. On the advanced examination Latin Composition is linked with Greek Composition, as if there existed between them a sort of natural Siamese twinning. No credit, so far as I know, is allowed for advanced Latin Composition alone, and so I think I may fairly say that the subject suffers a real discouragement. A practical hindrance to useful and solid attainment in this subject I find in the requirements of those colleges that prescribe a certain number of pages in some manual; and I wonder that it was not long ago discovered that any test of a candidate's power to express thought in Latin, based on such requirements, must be fallacious.

The conditions of a right method may be briefly stated:

First, the *material* itself of all exercises should engage the interest of the student, and to engage his interest, one condition is continuity of thought. That condition is wanting in the following exercise, which I take as the first at hand, but as a good type of hundreds:

"If you and the army are in good health, it is well. Both you and Balbus lifted up your hands. Both you and I have waged many wars. Both you and Balbus have waged very many wars. The best sauce is hunger. The Gauls were conquered by Cæsar. Hands were lifted up both by you and by Balbus. If you and your sister are in good health, it is well."

Secondly, without sacrificing the principle of continuity, the work required of the pupil should be both oral and written, and more oral than written.

Thirdly, reading and translation should conduce directly and strongly to the power of turning English into Latin, as this, on the other hand, should to the power of grasping the content of a Latin sentence.

Fourthly, the demand upon the student should provide not merely for the reproduction of what he has consciously observed and memorized, but even more what has been observed and held in the memory unconsciously.

Finally, the student must work after a model, with which he may compare his own performance. I do not know how these conditions can be met, except by making portions of Latin authors the basis of all work in Latin Composition.

It may help to make clearer and more definite the method that I have found so satisfactory, if I give, as a brief illustration, a small part of two exercises, that I have prepared and used in my own school, the first one for oral rendering into Latin, the second to be written. I should say that, as I have already indicated, the work in Latin Composition is always to be preceded by the translation and discussion of the text on which the exercises for retranslation are based. I take, for illustration, the last few lines in chapter eight of Nepos's Themistocles. Themistocles banished and pursued by his enemies has embarked for the coast of Asia Minor. The rest of the story is thus told by Nepos:

Quae cum tempestate maxima Naxum ferretur, ubi tum Atheniensium erat exercitus, sensit Themistocles, si eo pervenisset, sibi esse pereundum. Hac necessitate coactus domino navis, quis sit, aperit, multa pollicens, si se conservasset. At ille clarissimi viri captus misericordia diem noctemque procul ab insula in salo navem tenuit in ancoris neque quemquam ex ea exire passus est. Inde Ephesus pervenit ibique Themistoclem exponit: cui ille pro meritis postea gratiam rettulit.

LATINE DICENDA.

1. A violent storm was bearing the ship to Naxos. 2. If the ship arrives there, it will be fatal to Themistocles. 3. Themistocles perceived that the ship was being borne to Naxos. 4. He saw that he must perish. 5. Necessity compelled him to speak to the skipper. 6. "Skipper," said he, "I am going to reveal to you who I am. 7. I am Themistocles, son of Neocles, banished from my country. 8. I promise you a great reward, if you save me." 9. The skipper replied: "Most illustrious man, I am filled with pity, and will keep this ship a day and a night at a distance from the island. 10. The ship shall be kept at anchor. 11. I will suffer no one to go out of her." 12. The next day he landed Themistocles at Ephesus. 13. Him Themistocles afterwards rewarded as he deserved.

A few words and phrases are called for that have occurred earlier in the chapter, and a few notes are added. Otherwise there is nothing required of the student that is not in the text either explicitly or by implication. Then follows a brief bit of continuous English.

LATINE SCRIBENDA.

There he embarked on shipboard, but when a storm began to drive the ship to Naxos, Themistocles revealed to the master of the vessel who he was. The captain, through compassion, kept the vessel at anchor at a distance from the island and afterward landed the illustrious man in safety at Ephesus.

I have found that boys reading Nepos work at such exercises with even more apparent interest than on lessons in translating into English, and what is very noticeable, from the study of a Latin text in preparation, they unconsciously get a correct feeling for order in a Latin sentence.

FIRST FOUR WEEKS IN GREEK.

PROF. JAMES H. DILLARD, MARY INSTITUTE, WASHINGTON UNIVERSITY, ST. LOUIS.

I like to know what my brethren are actually doing in their classes. Whether they be working in some well-tried plan or be making trial of a new one; it is actually what they do day by day that I would ask them to tell me.

With THE ACADEMY'S permission I will tell briefly what my beginning Greek class did during October. Their first lesson was the alphabet and the divisions of vowels and consonants as found in §2 and 5 and 6 of Goodwin. The second lesson was the first two sentences of Moss's Greek Reader, containing twelve words. Of course I read the lesson to them, and told them about the breathings and accents. The next lesson contained fifteen words and a noun of the first declension, which they learnt to decline in the grammar. The next lesson had two more nouns of the first declension, which they learnt. We also began to watch the personal endings of the present tense. This lesson finished the story. They learnt the words by heart and wrote them. The fourth lesson had twenty-two words, several of them already known. We gave this also to the first declension and watched the accents. The pupils asked many questions; they had seen *εστιν* in the second lesson, and now this fourth lesson had *ἔστι* and *ἔστιν*. I told them all about it, at least all that is to be found in Hadley and Goodwin. We have worked on accents every day, so that I think they know a good deal about them. They know something also about elision and contraction. In the fifth lesson we had *ὄρᾳ*, and one of the pupils asked why it did not end in *ει* like the others. I find that this way of beginning seems to beget questions.

Thus we have kept on through twelve stories, covering four pages. We followed the first declension by the second and the third. We have not yet learnt all the irregularities of the last because we have not needed them, but we know *πόλις* and *άνήρ* and all the regular forms. We know adjectives of the first and second declensions. We have taken the grammar very regularly up to this point. When we came to a subject we tried to do it thoroughly. For example, at *νῶ* we learnt contract nouns. Beyond this point we have learnt in the grammar only the article *ἐγώ, αὐτός, οὗτος, ὅς*, the present and imperfect of regular verbs in *ω* and of *εἰμι*. We know the infinitive ending *ειν*, and the present participle ending *ων*. We know also the difference between the syllabic and the temporal augment.

Best of all, I think the pupils have learnt, for four weeks, a remarkably large vocabulary. They have learnt it more pleasantly and profitably than in upright columns. They learnt each word in intelligent connection. While reading each lesson beforehand for them, I have let them tell the word if they have had it. Some one is sure to know it. At times the whole class translates in chorus ahead of me. I ought to say that the class consists of nine girls, of about fifteen years, as bright as can be found on either side of the Mississippi. Within the next month I shall probably be able to assign lessons without previous translation.

I consider the following among the reasons for beginning with the text :

1. The work is more interesting to pupils. They meet at once connected thought.

2. The use of the grammar is more intelligent and less irksome. The pupil, seeing change of endings, recognizes the need of paradigms and the help gotten by learning them. A pupil once, beginning Latin, came to me with a paper on which were written the words *Gallia*, *Galliam*, *Galliæ*, and asked in all innocence how they could be classified. Such a pupil was glad to be introduced to the first declension. She had, moreover, learnt by experience the true function of grammar. I do not doubt that it is the feeling, if not the thought, of many pupils that Latin and Greek were written for the purpose of illustrating the grammars.

3. The vocabulary is acquired more easily, and the use of the word is seen at once in proper connection.

4. Above all the opportunity is given for simple questioning on the text, in the language, after Dr. Sauveur's method. It is in the beginning that this system is most valuable. The process is much misunderstood. It is by no means so difficult to the teacher as it may appear, certainly not in the beginning where the questions are to be as simple as possible and where the subject-matter is of facts. The questions being confined to the subject of the text, the only needed instruments for the "conversation," if it may be so called, are the words of the text and the interrogative pronouns and particles. The wonderful gain, by this method, of getting pupils to think in and to become *familiar* with, the language can be appreciated only by one who has tried both methods. The objection is that it requires more time than is given in many schools to a single recitation. In their answers the pupils are really doing Latin or Greek "prose composition," and time must be given them to be slow at first. I have for my Greek class but twenty minutes a day. Greek being entirely elective and not in the prescribed programme, it has to be put within half the usual time.

In conclusion I ask two questions. How soon should my class be set to translating from English into Greek? Not for a year, I think. Is it not rather absurd to put pupils to writing in a language which they have never seen? The "first lessons" which set pupils to writ-

ing sentences as "an introduction to Xenophon's *Anabasis*" put, I humbly think, the cart before the horse. My second question is to the as yet small, but increasing, number of teachers who believe in beginning with the text. Would it be better to begin with a simple reader like Moss's, or with the classic Xenophon at once? I am sure that pupils can begin Latin with Cæsar.

After writing the above and while looking over old copies of THE ACADEMY, I fell in with the articles of Professors Moss and Williams, published respectively in the numbers for October, 1886, and March, 1887. Not having previously read these articles, I was both surprised and delighted to see how closely the methods agree. I find that Prof. Williams gives a forcible answer to my second question. It may be added that this is also the emphatic opinion of no less an authority than Dr. Sauveur.

COMMUNICATIONS.

To the Editor of THE ACADEMY :

I have only just (Dec. 22,) found time to look at my Dec. No. of THE ACADEMY, and to read Dr. van Daell's article on Teaching French and German. Permit me to say that I think he does me an injustice on p. 539. A transitive verb used reflectively, and a reflexive verb (*verbe pronominal essentiel*) seem to me to be quite different things. With a case of the former as *Je me suis aimée* as far as the agreement of the past participle goes, it makes practically no difference whether with Borel we "play" that the auxiliary *être* is *avoir*, and so bring the case under the rule of the object preceding, or whether we let the auxiliary stand, as it must be, *être*, and so make the participle feminine to agree with the subject under the other rule. Now whenever *any* verb is used reflectively we must use *être* and as the obligation of choice between the above two courses is forced upon me, I prefer to take the latter.

The essentially reflexive verbs like *s'écrier*, &c., will, I think, fall into line.

At any rate, I do not think that I can be fairly said to "confound the passive and reflective forms." *Je suis attaquée* is the one and *Je me suis défendue* is the other.

I fail to recognize any justification in Dr. van Daell's criticism.

ANNA C. BRACKETT.

9 W. 39th St. New York City.

THE ACADEMY FOR 1889.

With the present number closes the third volume of *THE ACADEMY*. In response to many requests, the present editor has consented to retain the direction of the journal as in the past. During the year just closed he has ceased to work in the school-room, but he is conscious of no diminution of interest in the work, and, in feeling, he certainly was never more closely identified with those who have so long been his fellow-workers. The dust of the school-room is on him still, and he does not care to brush it off.

The lines laid down three years ago for the conduct of *THE ACADEMY* have been slightly modified as experience came to the aid of anticipation, but the lines have still followed the same direction and advanced toward the same goal. The kindness with which *THE ACADEMY* has been received and the cordial words of encouragement which have come to the editor, have far surpassed his anticipations and are the best reward of his work. He has no desire to belittle his own labor and effort, but he wishes to emphasize the support and assistance which his fellow-teachers have given to the enterprise. Especial thanks are due to the teachers of New York, under whose encouragement the work was begun, and scarcely less to the hundreds of teachers in all parts of the country who have reached out a helping hand.

In the future, as in the past, *THE ACADEMY* will commit itself to no scheme of methods, indulge in no personalities, seek no personal ends. Behind it are strong convictions, the expression of which we hope can be earnest without being offensive. It offers a rostrum and an audience for any thoughtful teacher who has matter of interest on subjects in its line of work. It has steadily increased in circulation, and we believe in influence and reputation also, from its first issue. The increase has not been as rapid as we have desired, but it has been enough to keep hope alive and to stimulate to new effort. We do not expect great things, but we shall try still to merit the commendation of those whose approval we are proud to have received in the past.

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ISSUED MONTHLY

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ASSOCIATED ACADEMIC PRINCIPALS OF THE STATE OF NEW YORK

VOL. III

JANUARY 1889

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We have received an "Introduction to Entomology" by John Henry Comstock, Professor of Entomology and General Invertebrate Zoology in Cornell University, with many original illustrations. Published by the author at Ithaca, N. Y. Price \$2.00. We hope to give the book a more extended notice hereafter.

We take pleasure in calling attention to the *Canada Educational Monthly*, published at Toronto. The December number just received closes the tenth volume of the journal, and a glance at its table of contents shows that it is amply deserving of the success which it has obtained. Its columns are not devoted to gossip, but to earnest and thoughtful presentation of subjects of general interest. We have read it with care now for several years, and while we have not always agreed with the positions taken we have found the treatment of every subject dignified and candid.

Some time since our attention was called to the Bureau of General Information at Washington. We are able from personal knowledge to recommend it as thoroughly trustworthy, and entirely reasonable in the matter of charges. It undertakes to answer all inquiries for special information whether literary, scientific, political or general. It looks up statistics, makes transcripts from authorities in the congressional or other libraries, gives reports of investigations and experiments. In fact it undertakes to answer any question that may be asked on any subject. A fee of \$1.00 must accompany every question and this fee covers all expense except where special arrangement for further research is made.

The Popular Science Monthly for January contains two articles of unusual interest to teachers: "Inventional Geometry," by Edward R. Shaw, and a reprint of the protest against the abuse of examination which was recently signed by four hundred prominent men in England. This protest is attracting much attention already in this country, and we shall later have something more to say about the absurdity of many of the comments on it. In the February number of *The Popular Science Monthly* it is proposed to present the communications from Max Müller, E. A. Freeman and Frederick Harrison on the same subject.

The Atlantic Monthly for January is not notable for its presentation of pedagogical subjects, but "The Athletic Problem in Education" by N. S. Shaler and "Washington's Great Campaign of 1776" by John Fiske, are papers which no teacher will want to omit.

The Century for December and January furnishes considerable rather solid reading. The chapters in

the "Life of Lincoln" and in the "Siberian Papers" are not less important than those which have preceded them, but from the nature of the subjects treated in these chapters they furnish rather drier reading than some of the others.

Bureau of Education Circular of Information No. 5, 1888, is devoted to Industrial Education in the South as seen by Rev. A. D. Mayo. In reading this circular it is not difficult to discern Mr. Mayo's point of view, and probably not every reader will agree with Mr. Mayo. Still the paper is important and deserves a wide reading.

The Cornell University Register for 1888-9 has been issued during the last [month]. We should be glad to give more space to the details in it, for no publication yet received from Cornell has so impressed us with the progress it is making. The increase in vigor and prosperity which this institution is enjoying is well indicated by the summary of attendance arranged according to classes in the academic department alone. Seniors, 105; Juniors, 184; Sophomores, 272; Freshmen, 412. A fourfold increase in four years is the most impressive commentary on the administration of any college which we have ever seen.

Ginn & Company, publishers, Boston, announce that the new edition of Lanman's Sanskrit Reader is now ready. Reader complete with notes and vocabulary, \$1.80. Text separate, 75 cts. Notes separate, 75 cts. These are net prices, postage paid, to teachers.

The December number (No. 39) of the *Riverside Literature Series* (published monthly at 15 cents a number by Houghton, Mifflin & Co., Boston) contains four carefully annotated papers by James Russell Lowell, "Books and Libraries," "Emerson, the Lecturer," "Keats," and "Don Quixote."

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An arrangement has been made by which the *Political Science Quarterly* and *The New Princeton Review* are consolidated. The publishers of the *Political Science Quarterly* (Ginn & Co.) have purchased *The New Princeton Review*, and the latter journal will be merged into the former. The political and economic questions to which *The New Princeton Review* has devoted so much of its attention, will form,

as heretofore, the special field of the *Political Science Quarterly*. Certain features of the former which have specially commended themselves to the public will be incorporated in the new magazine; and as Prof. Sleane will be associated in future with the work, the cause of sound politics can only gain by this union of forces.

At the San Francisco meeting of the National Association, held in July, 1888, the following resolution was introduced in the Secondary Department and unanimously adopted:

"Resolved, That any and all persons engaged in the work of Secondary Education be publicly invited to prepare a paper on some important subject connected with High School Instruction, for this section, at the next session of the Association; that these papers be examined by the Executive Committee of this department, and that one or more of them be placed upon the programme, if found to be of sufficient merit. Such papers are to be sent to the President of the Secondary Department on or before March 1, 1889."

The purpose is to secure the best papers on the

most vital subjects. While no theme is dictated, they suggest, "Methods of Study in English," and "Methods of Work in Science," as two of the subjects which are now attracting universal attention. The papers should not exceed three thousand words. They should be written on one side of the sheet, either with type-writer or in a plain, legible hand. All the papers cannot be selected, but the reflex influence of writing upon a subject after due investigation and thought, will be of value to the author, and constitute an excellent preparation for the enjoyment and discussion of whatever paper is accepted and placed on the programme. Each writer will sign a fictitious name to the manuscripts sent, and will place in sealed envelope, to be sent at the same time, the correct name and address with the fictitious name. This will avoid all favoritism, and the paper chosen will be chosen wholly on its merits.

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